

# The Mining Journal AND ATMOSPHERIC RAILWAY GAZETTE,

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 545.—VOL. XVI.]

LONDON: SATURDAY, JANUARY 31, 1846.

[PRICE 6D.

**NEWTOWARDS LEAD MINE.—TO BE SOLD, BY PUBLIC AUCTION,** at the Old Fellow's Hall, Douglas, Isle of Man, on Thursday, the 12th day of March next, at Twelve o'clock at noon, in lots, ONE HUNDRED and NINETY-ONE SHARES of the NEWTOWARDS LEAD MINE, in the county of Down, Ireland. This mine embraces the whole of the town lands of Whitesop; has lately been extensively opened, and furnished with sufficient machinery to extend the workings for many years; is now in a remunerative state, with every prospect of immediate further improvement, and consists of 598 shares, held under lease from the Marquis of Londonderry, for an unexpired term of 18 years, from the 1st November last, and a life, now six years of age, yielding a royalty of £100. The youth having a strong constitution, and the families noted for longevity, causes the property to be valuable, and worthy the notice of mining adventurers.

**MINERALS IN SOUTH STAFFORDSHIRE.—TO IRON AND COALMASTERS.—TO BE LET, ON LEASE,** the MINERALS in the LODGE FARM, at Cheshire Hay, six miles from Wolverhampton. The extent of the mines is about seventy acres; the ironstone is of a very superior quality; brick clay and fire clay are abundant; and within the moderate depth of 75 yards from the surface lie the following very valuable seams of coal—viz.

At 14 yards deep, Charles' coal, 2 feet 6 inches thick.  
82 " Four-foot coal, 3 feet 10 inches ditto.  
60 " Bench coal, 2 feet ditto.  
75 " Bottom coal, 6 feet ditto.

Below the latter the strata have not been proved.

A branch of the Staffordshire and Worcestershire Canal passes close to the estate, and a railway is constructed through it to the adjacent wharf and basin, to the use of which the owners are entitled, on terms which have been arranged with the Canal Company, thereby affording every necessary facility for the conveyance of the minerals.

There is an extensive and increasing demand for coal for the supply of the immediate district.—Further particulars may be known on application (by letter), to Mr. William Bean, Portland Colliery, near Mansfield.

**TO BE LET,** and may be entered upon immediately, all that current-going QUARRY, situated at Shildon, in the county of Durham, and called or known by the name of SHILDON LODGE QUARRY, presenting an unbroken face of rockface, upwards of 100 feet in thickness, uniform in quality, of a compact and close grain, excellently adapted for the erection of large public works, quays, harbours, piers, &c., and the stone is known to extend over 200 acres of the estate. A steam-engine is erected upon the premises, which will command the entire depth of the quarry, and pump out the feeders of water, which are trivial.

A private railway gives access to the Stockton and Darlington public line, by which stone may be transshipped for shipment at Stockton, or by the Great North of England and other lines, into the interior.

A lease for any term of years may be secured to respectable tenants at a moderate rental.—There is at present a considerable local demand from the many collieries in the vicinity, and the new railways in progress, forming one of the most desirable investments the county can afford.

Mr. Clemenson, on the premises, will, on application, show the quarry; and further particulars may be obtained on applying to Mr. John Robson, Redworth.

**LEAD MINES AT STRONTIAN, ARGYLLSHIRE.—TO BE LET,** for such a number of years as may be agreed upon, the well-known and valuable LEAD MINES in the neighbourhood of STRONTIAN. A level, or adit, which has been in progress for many years, has lately been driven into a mine of great extent, and rich in ore, by which the water has been cleared out, and a convenient access given to the works. These mines are in the vicinity of Lochstront. The neighbourhood is inhabited by a thriving and industrious population, of good moral character, among whom are many skilled miners. There is a smelting furnace and a crushing-mill near the entrance to the level, and an abundant supply of water. With these advantages the work may be begun without delay. As few mines possess a more extensive field for successful speculation, they are well worthy the consideration of capitalists, who are hereby invited to visit them.—Offers will be received by Sir James Miles Riddell, Bart.; or by William Kennedy, Esq., factor, Strontian.

Strontian, Dec. 11, 1845.

**GOLD AND COPPER MINE, NOW AT WORK, IN THE SOUTH OF ENGLAND, TO BE DISPOSED OF,** suited for a small company, with a moderate capital.—Apply to Mr. Goldsmith, 42, Judd-street, near the New-road, London.

**PEMPROKESHIRE.—TO BE LET,** for a term of years, the valuable SEAMS of STONE COAL and IRONSTONE, under certain lands in the parish of St. Josells, comprising about 195 acres. The coal is of most excellent quality, and the ironstone yielding, by analysis, 44 to 45 per cent, of pure iron, a great quantity of which can be worked in level, at a moderate cost. The railway to the shipping port of Saundersfoot, distant about 14 miles, runs within a few yards of the property, which will also be intersected by the branch of the South Wales Railroad to Tenby and Saundersfoot.—For further particulars apply to Thos. Stokes, Esq., Stean Castle, near Tenby.

**HELEN IRON-WORKS, NEAR BERWICK-UPON-TWEED.**—This highly desirable IRON FOUNDRY, &c., with its valuable MACHINERY, IMPLEMENTS, BOXES, and PATTERNS, TO BE SOLD, BY PRIVATE BARGAIN.—Applications for plans and catalogues to be made to Robert Guthrie, 159, Fenchurch-street, whilist we treat for their sale.

**MINING PROPERTY.—CAPITALISTS** who are disposed to INVEST in CORNISH and FOREIGN MINES, will find the present opportunity very favourable for so doing. From large sums having been lately diverted from such investments for railway speculations, standard mines are now selling at prices that will pay the purchaser 20 per cent. per annum for his outlay. There are also other mines that are on the eve of paying dividends, which can be recommended with confidence.

Applications to be made to Mr. JAMES HERIRON, mining agent, No. 3, Adam's-court, Broad-street, London.

**MINING OFFICES, 16, CORNHILL.—MR. R. TREDENNICK** (of Cornwall) having established PRACTICAL AGENTS and CORRESPONDENTS in every MINING DISTRICT, whereby he obtains early and accurate information respecting MINES, proffers his services to capitalists and adventurers in the PURCHASE and DISPOSAL of SHARES. Mr. Tredennick has business to do in the following MINES:

North Roskear	East Wheal Crofty
West Seton	North Pool
East Seton	Andrew and Nangles
Trelawney	Wheat Buckets
Wheat Mary Ann	South Trelawney
	United Hills

**NOTICE TO THE PROPRIETORS AND SHARE-HOLDERS OF MINES, SMELTING-WORKS, &c.**—Messrs. MITCHELL and FIELD beg to inform the PUBLIC, that they have REMOVED from No. 5 to No. 23, HAWLEY-ROAD, KENTISH TOWN, where they have erected a spacious LABORATORY, fitted expressly for the performance of all OPERATIONS CONNECTED WITH MINING.—Practical instruction to gentlemen in Assaying, Mineral Analysis, and Manufacturing Chemistry in general.

Analyses and Analyses conducted as usual.

All communications to be addressed to Messrs. Mitchell and Field, assayers, No. 23, Hawley-road, Kentish Town.

**THE PATENT SAFETY FUSE,** FOR BLASTING ROCKS IN MINES, QUARRIES, AND FOR SUBMARINE OPERATIONS.—This article affords the SAFEST, CHEAPEST, and most EXPEDITIOUS MODE of effecting this very hazardous operation. From many testimonies to its usefulness with which the manufacturers have been favoured from every part of the kingdom, they select the following letter, recently received from John Taylor, Esq., F.R.S., &c., "I am very glad to hear that my recommendations have been of any service to you; they have been given from a thorough conviction of the great usefulness of the Safety Fuse; and I am quite willing that you should employ my name as evidence of this." Manufactured and sold by the Patentees, BICKFORD, SMITH, and DAVEY, Mine-borne, Cornwall.

**RAILWAY GREASE.—RAILROAD CONTRACTORS, MINING AGENTS, and OTHERS,** who require a FINE CHEAP GREASE for HEAVY BEARINGS, are requested to TRY JOSEPH TURNBULL'S ANTI-FRICTION GREASE, which is proved by scientific men to surpass all others for its lubricating qualities, and its cheapness.—Samples and price, per return of post, by applying to F. Taylor, No. 46, Muster-square, Regent's-park, SOLE AGENT FOR LONDON; or H. Singleton, Bodmer, and Co., Marblie-street, Manchester.

P.S.—Single and double jacks, to raise from two to twenty tons, at wholesale prices.

**TO RAILWAY CONTRACTORS, COLLIERY OWNERS, ENGINEERS, and OTHERS.**—The PATENT VEGETABLE GREASE, at REDUCED PRICE, 12s. per cwt. for cash—the quality the same as that formerly sold at 30s. per cwt.—JAMES THOMAS FITT respectfully thanks these friends who have patronised him during the last ten years, and trusts, by strict attention to the quality of the article, and promptness in completing orders, to merit the continuance of their favours.—The PATENT VEGETABLE GREASE, for ANTI-FRICTION PURPOSES, at REDUCED PRICE.—Orders, stating by what conveyance, addressed to J. T. Fitt, Smead, Bermondsey New-road, London.

**TO ENGINEERS, RAILWAY CONTRACTORS, MINING AGENTS, IRONMASTERS, and OTHERS REQUIRING FINE GREASE for MACHINERY and AXLES of every description.—JOSEPH PERCIVAL'S IMPROVED ANTI-FRICTION GREASE is after trials on machinery and axles of every kind where constant friction is kept up, admitted to be the most useful, economical, and best grease of the kind ever offered to the public.**

References to scientific and practical men can be given, and testimonials shown on request.

Samples forwarded on application at the manufactory, Green-street, Wellington-street, Blackfriars-road, London.

## COMPRESSED AIR-ENGINE COMPANY.

PROVISIONALLY REGISTERED.

NO. 5, PAUL-MALL EAST, LONDON.

Capital £400,000, in 40,000 shares, of £10 each.—Deposit £1 1s. per share.

TRUSTEES.—Kenyon S. Parker, Esq., Q.C., Lincoln's Inn; Fred. Squire, Esq., 1, Pall-mall East.

DIRECTORS.—Sir James Carmichael, Bart., Sussex Gardens, Hyde Park.

Charles Farebrother, Esq., Alderman, Lanester-place, and Moat House Stockwell.

Lieut.-Colonel W. Fenwick, Sevenhampton, Andoversford, Gloucestershire.

Miles Miley, Esq., Phillimore-place, Kensington.

Joseph Wilkinson, Esq., St. Mildred's-court, City.

Thomas Eunshaw, Esq., Tulse-hill.

(With power to add to their number.)

CONSULTING ENGINEER AND PATENTEE.—Arthur Parsy, Esq.

AUDITORS.

Henry Wickens, Esq., Old Burlington-street; Alex. F. C. Ridgway, Esq., Leicester-sq.

BANKERS.—Messrs. Ransom and Company, 1, Pall-mall East.

SOLICITORS.—Messrs. Davies and Son, 21, Warwick-street, Regent-street.

SECRETARY.—Dr. Austin, Esq.

This company has been formed for the purpose of obtaining, from the patentee, the benefit of the patent right of his invention in Great Britain and its colonies, by means of licences, for its use.

By the present patent condensed air is applied in the most simple manner, so as to obtain an uniformly-regulated motive power, perfectly controllable, and capable of being instantly increased or decreased at pleasure, and is applicable in all cases where steam-power is now employed.—Prospectuses and every information with cards to view the working model can be obtained from, and applications for shares in the usual form made to, the secretary, at the company's offices, No. 5 Pall Mall East, London;

MESSRS. LAMOND, SMALE, and LAMOND'S PUBLIC

SALE OF RAILWAY SHARES, &c., are HELD at the Hall of Commerce,

Threadneedle-street, every TUESDAY and FRIDAY, at One o'clock precisely.—Orders received until Four o'clock of the day prior to sale.—London, Jan. 30, 1846.

## RYE AND THOMAS, MINE AGENTS AND DEALERS

IN STOCKS, RAILWAY AND OTHER SHARES,

80, OLD BROAD-STREET, LONDON, AND AT LISKEARD, CORNWALL.

JAMES LANE, SHARE AGENT,

HALL OF COMMERCE, LONDON.

WILLIAM TRENTREY, DEALER IN RAILWAY AND

MINING SHARES.—ESTABLISHED TEN YEARS.

OFFICES, NO. 50, THREADNEEDLE-STREET, LONDON.

WILLIAM FOX AND SON, No. 53, CASTLE-STREET,

LIVERPOOL, have always on SALE PIG-IRON, RAILWAY BARS, CHAINS,

and IRON of every description.—TIN PLATES, WIRE, &c.

MESSRS. LAMOND, SMALE, and LAMOND'S PUBLIC

SALE OF RAILWAY SHARES, &c., are HELD at the Hall of Commerce,

Threadneedle-street, every TUESDAY and FRIDAY, at One o'clock precisely.—Orders received until Four o'clock of the day prior to sale.—London, Jan. 30, 1846.

## UNITED MEXICAN MINING ASSOCIATION.

NOTICE is hereby given, that a DIVIDEND of FIVE SHILLINGS per share will be PAYABLE at the office of the association on and after Wednesday, the 11th of February next, between the hours of Eleven and Three.

Forms for claiming the dividend may be obtained at the company's office, and must be left two clear days, for examination, previous to payment.

By order of a court of directors,

8, Great Winchester-street, London, Jan. 28, 1846.

JOHN MATHER, Secy.

\* \* \* The holders of scrip shares will not be entitled to receive the dividend until their shares are registered.

## CONSOLIDATED COPPER MINES OF COBRE ASSOCIATION.

NOTICE is hereby given, that a DIVIDEND of ONE POUND per share will be PAID at the office of the association on and after Wednesday, the 26th of February next, between the hours of Eleven and Three.

Forms for claiming the dividend may be obtained at the company's office, and must be left two clear days, for examination, previous to payment.

By order of the court of directors,

WM. LECKIE, Secretary.

## CHARING-CROSS BRIDGE COMPANY.

NOTICE is hereby given, that the HALF-YEARLY GENERAL MEETING of the proprietors of this company will be held at No. 9, Villiers-street, Strand, in the city of Westminster, on Thursday, the 12th day of February next, at One o'clock precisely, to receive the directors' report, and on other business.—The books for the registration of transfers of shares will be closed on the 31st of January, and re-opened on the 13th of February, both days inclusive.

Signed, WILLIAM HAWES.

JOHN MATHER, Deputy Chairman.

GEORGE THOMAS, Chairman.

THOMAS MULLISTER, Secretary.

## DUFFRYN LLYNVI AND PORTHCAWL RAILWAY COMPANY.

January 14, 1846.

We, the undersigned, being holders of at least five shares each in the above company, do hereby direct you to SUMMON A SPECIAL GENERAL MEETING of the shareholders, to be held at the Wyndham Arms Inn, Bridgend, on Wednesday, the 4th day of February next, at Twelve o'clock precisely, to consider the propriety of reducing the tonnage, and of opposing any competing line of railway which may be applied for in the ensuing session of Parliament.

DIGBY MACKWORTH.

W. H. BUCKLAND.

HENRY STOUGHTON.

JOHN HALCOMBE.

WILLIAM JONES.

To Mr. W. S. Bradley, Clerk to the Company.

Notice is hereby given, that, in obedience to the foregoing requisition, a SPECIAL GENERAL MEETING of the proprietors will be HELD at the Wyndham Arms Inn, Bridgend, Glamorganshire, on Wednesday, the 4th day of February next, at Twelve o'clock precisely, for the purposes stated therein.

W. S. BRADLEY, Clerk.

## PATENT IMPROVEMENTS IN CHRONOMETERS.

WATCHES AND CLOCKS.—E. J. DENT, 82, Strand, and 33, Cockspur-street,

watch and clock maker, BY APPOINTMENT, to the Queen and Her Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1835, 1840, 1842.

Silver lover watches, jewelled in four holes, 6 gs. each; in gold cases, from £10 extra. Gold horizontal watches, with gold dials, from 8 gs. to 12 gs. each.

DENT'S PATENT DIPLIODESCOPE, or meridian instrument, is now ready for delivery.

Pamphlets containing a description and directions for its use £1. each, but to customers gratis.

## SIR WILLIAM BURNETT'S PATENT, FOR THE PRESERVATION OF TIMBER, CANVAS, CORDAGE, COTTON, WOOLLEN, &c., FROM DECAY.

TESTIMONIALS.

From THOMAS GRAHAM, Esq., M.A., F.R.S., L. and E., Professor of Chemistry, University College, London.

"After making several experiments on wood prepared by the Solution of Chloride of Zinc, for the purpose of preservation, and given the subject my best consideration, I have come to the following conclusions:

## Glossary of Foreign Mining Terms.

In compliance with the request of several correspondents, we lately commenced the publication of a complete series of technicalities used in English and Foreign Mining—in fulfilment of our promise, those of Cornwall and Derbyshire are completed; and we now continue the terms used in

## SPANISH MINING.

*Espato Calizo*—Calcareous spar.

*Espato fluor*—Fluor spar.

*Espato pesado*—Heavy spar; sulph. of lime.

*Espafuelo*—Mica.

*Especie*—The cross level of the noria or tahona to which the mules are harnessed; a lever.

*Estaca fixa*—The post driven into the ground, from which the pertenencia is originally measured. *Estaca*, means a stake.

*Estado*—A statement or account.

*Estano*—Tin.

*Estanque*—Pond, dam of water.

*Estorague*—Brown blonde, sulphuretted zinc.

*Esmal*—Blende.

*Esmeralda*—Emerald.

*Esmeril*—Emery.

*Espato*—Spar.

*Faenas*—Work done by common labourers, such as dead work, removing rubbish, &c.

*Faenero*—Rubbish carrier.

*Fanega*—A dry measure, containing 12 celamines, or 1599 of an English bushel.

*Faneada*—An extent of land, 90 $\frac{1}{2}$  fanegados are equal to 100 English acres.

*Feldespato*—Feldspar.

*Fierros*—Stein, vulgarly regulus, from the smelting furnace.

*Flete*—Freight.

*Fluoropato*—Fluor spar.

*Fluxo*—Flux.

*Fondor*—A furnace for smelting ores.

*Fosforo*—Phosphorus.

*Fosiles*—Fossils.

*Fragua*—A forge.

*Frios*—In amalgamation cold ores, those containing calcareous matter, and therefore requiring a larger quantity of sulphuric acid from the magistral.

*Frente*—An end; a forehead; an extremity of an adit or other level.

*Frijollido*—A breccia.

*Frizoles*—French beans, the common food of the country.

*Frutos*—Produce, ore.

*Fueltas*—Bellows.

*Fundidor*—A founder, a smelter.

*Fundicion*—Smelting; also, the smelting-house.

*Galena*—Galena, sulphuret of lead.

*Galera*—A large shed, a mill-house, or grinding-mill; a large building on the floor of which the treading-in of the quicksilver in amalgamation takes place.

*Galeria*—A gallery; a level.

*Gallos*—Small particles of silver, which appear in the shape of spherules on the surface of certain ores, after they have been strongly heated; more generally, however, applied to the spitting out of the silver from the assay button on cooling; also, fine specimens of native silver, or other rich ores.

*Gamela*—A large wooden bowl.

*Golpeador*—A miner, who works with the mallet or hammer in blasting.

*Granada*—Garnet.

*Granito*—Granite.

*Grano*—A grain.

*Granos de ore*—Grains of gold.

*Granza*—Coarse particles of ore after grinding which require to be ground again; brayed ore.

*Granzas*—Poor ores.

*Grasas*—Slag from the smelting furnace.

*Greda*—Chalk.

*Grena*—Ores in the rough state, not cleaned.

*Greta*—Litharge, fuller's earth.

*Guadra*—The large cross-beam in which the upper spindles of the shafts of machinery traverse.

*Guarda*—A rib of different substance from the rock or lode, which generally is upon the sides of the vein, called, in Cornwall, caps of a lode, or backs.

*Guarda raya*—Marks or limits of the boring, or measurement of the work done in a mine; limit or boundary line.

*Guia*—A mark directing to the richest part of the vein.

*Guijarro*—Pebble.

*Gujo*—The iron spindle of the shaft of machinery.

*Guixa*—Quartz.

*Habilitador*—He who supplies money for working a mine.

*Hachas*—Axes, hatchets.

*Hacienda*—Farm; estate; establishment for reducing ores.

*Hacienda de beneficio*—Establishment for reducing ores.

*Hacienda de fundicion*—Establishment for smelting ores.

*Haciendero*—The superintendent of the hacienda.

*Hechado*—Dip of the lode.

*Herramienta*—Tools; taken figuratively it implies a borer and hammerman.

*Hierno*—Iron.

*Hierro colado*—Cast iron.

*Hierro labrado*—Wrought iron.

*Hilo*—A small vein or thread of ore in a lode.

*Hilo de la veta*—Line or direction of the vein.

*Hilos altos*—Threads or small veins of ore falling into or proceeding from the upper or hanging wall of a lode.

*Hilos bajos*—Threads or small veins of ore proceeding from or falling into the lower wall of a lode.

*Hoja de data*—Tin plate.

*Hoja de laton*—Sheet brass.

*Hoja de libro*—Finely laminated clay; slate, talc, lit. leaf of a book.

*Horno*—A furnace.

*Horno de fundicion*—A smelting furnace.

*Horno de magistral*—Roasting stove for copper stove.

*Huaco*—A hollow.

*Hueco*—A hollow place.

*Huembas*—Small rough beams of buildings.

*Hundido*—Sunk in; workings which have fallen in.

*Incorporar*—In amalgamation, to add the first charge of quicksilver. The term, *cebar*, is applied to the adding the subsequent charges; it also means the act of mixing in thoroughly the whole of the quicksilver, with the torta of wet ore.

*Ingrenos*—Engines.

*Instruments*—Instruments, tools.

*Intendente*—Intendant.

*Interventor*—Inspector, representing the interests of the proprietors by whom appointed, or of the *aviador*.

*Irido*—Iridium.

*Jantilla*—A double-handed ladle into which the melted silver falls from the cras.

*Jaspe*—Jasper.

*Jornaleros*—Day labourers.

*Jorongo*—A small basket; also, a blanket.

*Labor*—A work from which ores are extracted; in general, all work of the mine, and especially the front work.

*Labores de hacienda*—All workings in a mine not let to tributors.

*Ladrillera*—An iron or stone mould in which the melted silver is poured in order to form the barra.

*Ladrillos*—Bricks.

*Lana*—Slime or schlem from the amalgamation.

*Lamero*—The lama when merely thickened by admixture with saltier.

*Lameros*—Lama pits.

*Lancha*—A sort of hard freestone.

*Lapiz*—Black lead.

*Lapiz encarnado*—Red chalk.

*Laton*—Brass.

*Lava*—Lava.

*Lavador*—A man employed in washing the ore after amalgamation, or rather, in cleansing the amalgam.

## Mining Correspondence.

## ENGLISH MINES.

**BARRISTOWN MINE.**—*Carry Tagmon, Jan. 23.*—The lode in the 18 fm. level, and west of flat-rod shaft, is at present near the slide; it is 18 in. wide, producing about 3 tons per fathom. The two pitches behind this end look much the same; the lode in eastern end, at this level, produces over 2 tons per fm., and looks very regular. We have suspended the eastern end of the 12 fathom level for the present; the lode is about 18 inches wide, with a slight mixture of ore, and a great underlying. In the eastern end, on middle lode, the lode is 8 ft. wide, scarcely producing  $\frac{1}{2}$  ton of ore per fathom. The lode in Nang's shaft, up the hill, produces 2 tons per fathom. The pitch, to the east of this shaft, looks much the same as last reported; the lode is from 8 to 10 ft. wide, with a good branch of lead, varying from 6 to 12 in. wide, with other small branches through the lode; the water has very much increased in this shaft since the last floods.—T. ANGOVE.

**BEDFORD UNITED.**—*Jan. 27.*—At Wheal Marquis, in the 70 fm. level east, the lode is 2 ft. wide, composed of gossan and ore, worth 10*l.* per fm. In the 58 fm. level east the lode is 2 ft. wide, worth 16*l.* per fm. In the 47 fm. level, west on the south lode, the lode is 20 in. wide, composed of gossan, spar, and mundic, with stones of ore in places. At Ding Dong, there has been no lode taken down in the 24 fm. levels east and west. At Wheal Tavistock, the lode in Phillips's engine-shaft, is 2*1/2* ft. wide, composed of mundic and ore, very kindly. In the 35 fm. levels east and west, there is no alteration of importance. The building of the wheel pit, &c., is progressing as fast as the present unfavourable weather will permit.—J. PHILLIPS.

**CALLINGTON.**—*Jan. 26.*—In the 90 fm. level, driving north of the engine-shaft, the lode continues to improve, leaving backs that will work at 4*l.* in the 12. We have a much greater quantity of water from this end than is usual with the same kind of lode and nature of ground, which leads us to expect an east and west course at no great distance a-head; the ground we are driving through at this level, south of the shaft, will set at 5*l.* in the 12. On the value of the lead. In the 80 and 70 fm. levels the ground is rather hard for driving—lode composed of iron, intermixed with mundic and lead, leaving backs that will set at 10*l.* in the 12. The copper lode, at the last-mentioned level, is looking kindly, about 15 in. big; the tributors working on this lode, in the back of this level, are doing extremely well, having discovered a branch of ore, about 1 ft. big, and worth 15*l.* per fm. In the 100 fm. level, driving south of Johnson's engine-shaft, the lode is producing silver-lead ores—the men belonging in the north end, are now rising against the winze; when holed, the backs will set at 7*l.* in the 12. The same remarks will hold good for the 90 fm. level driving north. The engineers are just now preparing for the fixing of the engine for stamping and crushing. We sampled on the 21st inst. a rich parcel of silver-lead ores, about 91 tons.—J. T. PHILLIPS.

**DEVONSHIRE GREAT CONSOLS.**—A dividend of 12*l.* per share, which amounts to 12,288*l.* has been declared for the two months, and 800*l.* added to the reserve fund; and, as between 300*l.* and 400*l.* has been reserved for the February cost, the sale (118*t.*) of ore at Truro, on the 22d inst., which produced 7063*t.* 18*s.*, is additional profit. The following report was presented:—“At Wheal Maria the parts of the lode driving (which in each level is not more than 5 ft.), are worth in the 40 fathom level east 50*l.* per fm.; the 40 west, 120*l.* per fathom. The lode in the winze going down from the 28 is worth 130*l.* per fathom. At Wheal Josiah the lode at the cross-cut is gone through 8 feet in fine gossan, mundic, and spots of black and yellow ore.—At Wheal Fanny the lode in the shaft is worth 180*l.* per fathom. The 15 fm. going west, the lode is worth 180*l.* per fathom; and the 15 fm. level going east, 20*l.* per fathom. The Plantation, or western shaft, is equally promising as ever.”

**EAST TAMAR CONSOLS.**—*Jan. 27.*—At Whitsun, in Hitchins's engine-shaft, the men have been engaged in taking down the lode in the shaft, which is turning out very good work. In consequence of the heavy rains, we have not been able to get in the levels, the water being so powerful. At the south shaft, we are still clearing south, but find no whole ground yet. Furzehill engine-shaft is down to the level of the water; I have put the men to clear the level south, where we expect to find whole ground in a few fathoms clearing. At Charlotte's, Whitsun, and Furzehill, the tribute departments are looking very promising.—B. ROBINS.

**GUNNIS LAKE.**—*Jan. 27.*—At Chilsworthy, the lode in Bailey's engine-shaft is 2 ft. wide, composed of gossan and spar. In the adit level east the lode is without alteration.—W. RICHARDS.

**HAWKMOOR.**—*Jan. 27.*—The south engine-shaft is 17 fms. 3 ft. below surface, no lode taken down. The western engine-shaft is 15 fms. 3 ft. below surface, lode without alteration. In the 15 fm. level, west of Hitchins's shaft, the lode is 20 in. wide, composed principally of capel; and in this level east the lode is disordered by a small cross-course.—P. RICHARDS.

**HOLMBUSH.**—*Jan. 27.*—The ground in Hitchins's shaft, sinking below the 110 fm. level, is not so hard as last reported. In the 120 fm. cross-cut the ground is still hard; in driving south, at the 110 fathom level, we have not intersected any branch since the one last reported; in the stopes, in the back of this level, west of Hitchins's winze, the lode is 12 in. wide, and worth 14*l.* per fm.; in the stopes, west of the sump winze, the lode is 18 in. wide, and worth 12*l.* per fm.; in the stopes, east of Dodge's winze, the lode is 10 in. wide, and worth 10*l.* per fm. In the 100 fm. level, west of Hitchins's shaft, on the north part, no lode taken down; in the 100 fm. level, west on the south part, the lode is 15 in. wide, worth 30*l.* per fm.; in driving east at this level, we have got through the lead lode—it is 4 ft. wide, and worth 6*l.* per fm. In the 90 fm. level, driving north, the lead lode is 2 ft. wide, at present worthless; in the 90 fm. level, south on do, the lode is 18 in. wide, with spots of lead only in the flookan. We have resumed driving the 62 fm. level, and are still in the cross-course. In the rise, in the back

# ATMOSPHERIC RAILWAY GAZETTE.

## FOREIGN MINES.

**IMPERIAL BRAZILIAN.**—*Gongo Soco, Nov. 22.*—At Catta Preta the adit level southward from Brightman's shaft, is still in progress; but it has hitherto intersected nothing worthy of notice. Thomas's shaft is being sunk beneath the 10 fm. level; but, as it goes down perpendicularly through the rock, we shall know nothing of the lode, until we extend a cross-cut. Owing to the very defective state of the working barrel of the pump, our progress is much slower than it would have otherwise been; but I hope those requested in my respects of the 3d July, will soon relieve us in this respect. We are preparing the rods and pumps for Fitzpatrick's shaft, but various small difficulties have materially impeded us; we cannot touch this part of the mine again until the pumps are in order. At Canta Galla, I hope we shall get towards the spot from which the shoot of jacotinas (if it continues from Señor Luiz Soare's old workings) ought to be intersected by the end of the year. Our trials on the Dois Irmãos rego have hitherto been unpromising, as well as unsuccessful. The other parts of the mine, I regret to say, present nothing new. A cross-cut, north of Alcock's shaft at the 21 fm. level, and a rise from the 48 fm. level, at the junction of the north and south jacotinas, east of Vesey's shaft, have been commenced to explore these parts of this mine. We have had sufficient rains to give us power to drain the 62 fm. level; but a few dry days have prevented our reaching the 70, which, however, we hope the very next rains will enable us to do, when we shall attempt sinking on the more promising part of the jacotinas. *Dec. 3.*—The increase of surface water enables us to drive the 70 fm. level again, and we have commenced sinking below it, at some distance east of Vesey's shaft, where the appearance of the jacotina, and where the veins, shewed good samples, and gold in the stone. In the back of the 27 fm. level, east of Aveline's shaft, we have had a few boxes of very inferior work for the washing-house; but they have been obtained from an arch of ground, which is not likely to last long. Our other works, mentioned in former letters, are still in progress, with the exception of the level west from Gongo adit shaft, which has been stopped; but as none of them present anything new, they call for no remark. At Catta Preta, the cross-cut southward from Brightman's shaft has not yet intersected anything valuable; and I fear we shall shortly have to relinquish this sole remaining part of the trial commenced by Mr. Crickett. We continue to sink Thomas's shaft; but as the rock disintegrates into sand, on the contact of water, it is troublesome to deal with, and injures the pumps very much. The lode is still unseen in the deepest part. The pumping machinery is in course of erection at Fitzpatrick's shaft; and, until its completion, we can do nothing in that part of the mine.—W. J. HENWOOD.

The following is a statement of the gold returns:

	From the Stamps.	Total raised.
1845—Nov. 13 to 20	lb 6 7 17 0	lb 6 7 17 0
" 21 to 28	" 21 11 12 0	" 21 11 12 0
" 29	lb 4 3 4 0	lb 6 3 13 0
	lb 15 11 3 0	
Total from 1st July to 29th Nov.	lb 125 11 9 0	

**ST. JOHN DEL REY.**—*Morro Velho, Nov. 28.*—The principal work is the Cacheira dip shaft, which will be ready for the pumping machinery before the machinery will be ready for it; this is a most important object at present to push forward. *Dec. 8.*—Produce for November, 10,911½ oits.—104,820 lbs. troy, from 2689·6 tons of ore, equal to 4·056 oits. per ton. This is a very low average per ton, and is partly to be attributed to the separate stamping of the Gamba ores without any rejection. To what extent this circumstance may have operated in lowering the standard of the ores stamped, we do not know; as the separate stamping of these ores was not completed at the end of the month, and is still being continued; the least average will be 3 oits. per ton—this much we know. Very little ore has been broken in the good stopes in the United Mines; the principal supplies having been derived from the vicinity of the sump shaft, the West Quebra Panella, and the Champion ground. In the Cacheira, the ore has come from all parts. In the United Mines, the immediate object is to get down the sump and the western stopes, that a regular succession of stopes may exist from one end of the mine to the other. In carrying this object into effect, the poorest parts of the mine are being worked, and the best parts left comparatively unworked. The Gamba has been stopped all over, to obtain a good average value of this lode. The Cacheiras are being worked in such a manner (as far as supplies of ore for the stamps will admit), as will facilitate the sinking of the new sump shaft. To obtain this object in the shortest time, the stopes in these mines ought to remain unworked for some months, but the stamps will not allow this. The saw mills, since the working of the vertical saws, has expedited the timbering of the new Cacheira drawing shaft some three months.—Cost for Nov., rs. 25,800 or 2821·19s. 8d.

## UNITED MEXICAN MINING ASSOCIATION.

The half-yearly general meeting of the shareholders in this undertaking was held at the London Tavern, on Wednesday last, the 28th inst.

Sir JOHN EASTHORPE, Bart., M.P., in the chair.

Mr. MATHER (the secretary) read the advertisement convening the meeting, and stating its objects—viz., for the purpose of electing three directors, in the room of A. Humphrys and J. Biddulph, Esqrs., deceased, and Stewart Majoribanks, Esq., M.P., resigned, and also to recommend the payment of a dividend, at the rate of 5s. per share. He then read the minutes of the last meeting, which were confirmed, and the following directors' report:

REPORT.

The directors, in again meeting the proprietors, beg to submit the following statement of the company's affairs:

**Mine of Rayas.**—The works throughout this mine have undergone no particular change; the operations in the new grounds of research and investigation continue to be prosecuted, but with a due regard to equalising the expenditure with the produce; and, by the last advices, a slight improvement had taken place in the sales of ore on joint-account with buscones, which was expected not only to prove permanent, but gradually increase, as the principal working was in a favourable direction of the vein. The amount received by the association since the last meeting was \$18,810 3 2, reducing the debt of the mine to \$690,812 1.

**Rayas Contracts.**—As reported at the last meeting, the association now controls and represents about three-fourths of the mine, or, in bars, 17 92-100ths; there are, besides, belonging to Don Francisco Sardaneta, 3·75; and also of the Instrucción Pública, 2·33. Total bars, 24. The whole of the contracts will expire on the 1st January, 1852. The share of the produce of the mine appropriated to the repayment of the debt thereof remains at 134 bars.

**Haciendas.**—These establishments are now fully employed in the reduction of the ores of Rayas, and also of "bought ores."

**Zacatecas.**—The hacienda, of Cinco Señores, in this district, which for several years has been unemployed, has been disposed of for \$15,000, and the stores thereto for \$1323 5. 7. The claim on the Mexican Government arising out of the San Acero law suit, so often referred to, continues to be strongly urged upon Mr. Bankhead's attention, by Mr. Shoolbred, and we believe that Mr. Bankhead is urging the settlement on the Mexican Government, but to the present time no positive result has been attained.

**New Mines.**—By Mr. Shoolbred's last dispatch, no new mine had been met with of a sufficiently desirable character, to warrant his entering into a contract.

**Management in Mexico.**—Mr. William Heath, lately in the service of the Asturian Mining Company, in Spain, has been appointed to succeed Mr. Shoolbred as the chief manager of the affairs of the association in Mexico. Mr. Shoolbred may be expected in England, in April, or May next.

**Management in London.**—Three vacancies in the direction, have been caused by the death of John Biddulph, and Ambrose Humphrys, Esqrs., and the retirement of Stewart Majoribanks, Esq., M.P.; and the following gentlemen are candidates to supply the vacancies—viz.: Robert Biddulph, Thomas M. Flockton, and James N. Shoolbred, Esqrs.

**Finances in Mexico.**—On the 22d November the available asset was \$20,276 3 1, exclusive alike of Treasury bonds, \$10,065 7 2.

**Finances in London.**—The directors beg to submit to the meeting the following audited account, from the 31st Dec., 1844, to the 31st Dec., 1845:

*Abstract of the London Audited Account, from Dec. 31, 1844, to Dec. 31, 1845.*

Assets on the 31st Dec., 1844	£8,158 18 7
Received since—	
Transfers fees and discount on stamps	£ 44 5 6
Interest on Exchequer bills	£ 89 1 5
Ditto on money lent	200 17 0 — 289 18 5
Remittances from Mexico—	20,289 4 4
In bills of exchange	16,900 0 0 — 36,289 4 4 — 36,623 8 3
Paid in 1845, on Mexican account—	£44,782 6 10

For quicksilver shipped £ 5,000 1 8  
For sundry payments 171 18 4 — 5,172 0 0  
On London account—viz.: —

Creditors, 31st December, 1844..... 154 11 2  
Office expenses—For rent, postage, salaries, stationery, law charges, and sundry disbursements..... 1,459 7 6

For auxiliary capital repaid..... 78 0 0  
For red scrip ditto..... 2,076 5 0

First dividend, 7s. 6d. per share..... 13,236 7 6 — 22,176 11 2

Leaving the asset at £22,605 15 8

This asset of 22,605 15s. 8d. is subject to the unclaimed—

Auxiliary capital £ 1,147 0 0

Red scrip 1,745 5 0

Dividend 2,583 17 6

Reserved fund 5,000 0 0

Together £10,946 2 6

Leaving a disposable asset on hand of 11,759 13s. 2d. applicable to the payment of a dividend, which, at the rate of 5s. per share, would amount to 10,793 1s. The directors, therefore, recommend a dividend of 5s. per share, to be paid on and after the 11th of Feb.

The CHAIRMAN said, that he was not aware that there was any thing of importance that he could add to the report; but if there was any thing unintelligible, he should be happy to explain. He might just observe, that in recommending this dividend, they were following the rule they had always adopted since they had commenced paying dividends—viz., to reserve at all times a sufficient fund unappropriated, to meet emergencies. It would be seen by the report, that the return of capital applicable to a dividend for the half-year was 16,759 13s. 2d.; the payment of a dividend would amount to the sum of 10,793—thus leaving them in hand 5966 13s. 2d.; this 5000l., and a few

hundreds, they might require, as they should soon have to make fresh purchases of quicksilver; but all the cash they could prudently spare was invested at the best interest they could get; he observed that 289l. 18s. 5d. had been received in the past year on their invested fund. There was another point he would just mention, respecting no new mines having been offered to Mr. Shoolbred, which that gentleman considered satisfactory; it would be remembered, that his instructions were to take advantage of any mines which might offer, provided he felt satisfied of the probability of a good return, but that he was not to depend on one shilling from England for such purpose, but rely on his prospective funds in Mexico to effect the object. With respect to Mr. Heath, the gentleman who had been appointed to succeed Mr. Shoolbred, he understood the Spanish language—had had much experience in somewhat similar mines in Spain—had been highly recommended, and appeared to enter into the undertaking with proper spirit; he would arrive at Guanajuato before Mr. Shoolbred left, and would thus obtain every necessary information, and be put in the way to go on well. He had no power to make new arrangements; but if he heard of any promising adventure, he was immediately to write to the board at home—and as Mr. Shoolbred would then be in London, and he hoped with a seat at the board, they should have the benefit of his experience and advice.

Mr. PEARCE then moved the adoption of the report, and observed, that there were two points in the report which he thought particularly worthy of notice—viz., the extreme care observed by Mr. Shoolbred, and the very moderate remuneration which the directors had received; and he could not help feeling that their services were worth much more.—Mr. FLOCKTON seconded the motion, and the report was unanimously adopted.

The CHAIRMAN then proposed that a dividend of 5s. per share be paid on and after the 11th February next, which was confirmed; he then proposed that R. Biddulph, T. M. Flockton, and J. N. Shoolbred, Esqrs., be elected directors, in the room of A. Humphrys and J. Biddulph, Esqrs., deceased, and S. Majoribanks, Esq., M.P., who had resigned—which was carried unanimously.

Some conversation arose on the consolidation of the red scrip, when the CHAIRMAN observed, that, although some came in every day, he believed it would come much faster, but the expense of the power of attorney deterred many; they had consulted their legal adviser on the subject, but it appeared they had no power under the deed to alter it.—A vote of thanks was then passed to the chairman, and the meeting broke up.

## NORTH FOWEY CONSOLS MINE.

This sett, which immediately adjoins Fowey Consols, and which, from the lodes seen at surface, and at shallow depths, appears to hold out much promise, having been recently obtained, the mine has been divided into 128 shares, which have been all taken up, and on the 19th inst., a meeting of the adventurers was held at the Queen's Head Inn, St. Austell.—J. ELLIS, Esq., of Falmouth, in the chair,—when a report from Capt. Mark Richards was read, which reported highly in favour of the adventure, and which was confirmed by Capt. DALLEY, when resolutions to the following effect were passed—viz., That Mr. Dunn be the purser and clerk, at a salary of 2l. per month.—That Mr. Richards be appointed managing captain, at a salary of 50l. per month, until an engine is erected.—That a deposit of 10l. per 128th part or share be now called for, which shall be lodged in the Falmouth Bank, to the account of the North Fowey Consols adventurers. The call to be paid on or before the 2d of Feb. next.—That the following gentlemen be requested to act as a financial committee—viz., Messrs. T. H. Tilly, W. J. Clarke, J. Dalley, J. Ellis, T. P. Dixon, M. J. Jacob, and R. S. Donnall; and that the purser be directed to produce the monthly accounts before not less than three of the said committee, and from them receive an order for such sum as may be necessarily required, to pay the costs; and without such order be signed by them, no money be allowed to be drawn by the purser, or any other agent of the said mine.—That the purser be authorised to transfer each name from the present list to that of the cost-book, on the receipt of the first deposit of 10l. per 128th part or share; and that the cost-book be signed by each adventurer, or by some one authorised by them to do so; before which no one shall be recognised as an adventurer.—That such adventurers as shall not pay their calls within one month after the same shall have been declared, shall be considered as having virtually relinquished their respective shares; and the purser is hereby authorised to expunge their names from the list of shareholders accordingly, and this resolution shall be considered binding not only on the present adventurers, but also on their representatives and successors, whomsoever they may be, or by whatsoever means they may have obtained their shares.—That no materials be ordered, or contracts of any description entered into, without the consent of the purser or the financial committee, or such person or persons as they may think proper to appoint,—to act jointly with Capt. M. Richards for that purpose.—That before the engine is ready, a meeting of the adventurers be convened, for the purpose of examining the accounts, receiving the agents' reports, and for making such further deposits as may be deemed necessary for the effectual working of the mine.—That Capt. J. Dalley be requested to assist Capt. M. Richards in the management of the mine, by giving him his advice on all necessary occasions; and for a time be solicited to do so gratuitously. (To which Capt. Dalley very readily assented).—That the report received from Capt. M. Richards, and supported by Capt. Dalley, together with a copy of these resolutions, be published and supplied to each shareholder, and that a condensed report be inserted in the *Mining Journal*.—That a second-hand engine, of not less than 40-inch cylinder, nor more than 60-inch, with or without a boiler, be advertised for, and, should no answer be given, that estimates be immediately obtained for a new engine of 40-inch cylinder, with suitable boiler.—That Mr. R. S. Donnall be appointed surgeon to the mine, on the usual terms.

N. KENDALL, Esq., of Pelym House, the lord of the manor, attended, and explained his views with respect to the mine,—when a vote of thanks was awarded him for his liberal views, and future offers; as also to the chairman, for his conduct in the chair. We understand that the meeting went off with much spirit, and that the shares are much in requisition.

The following is Capt. Mark Richards' report, dated St. Austell, January 19, above referred to:—In laying before you my report of North Fowey Consols Mine, I beg to state that we have driven east on the course of the lode, in the deep adit level, four fathoms. The lode in the eastern end is about eight fathoms deep, being divided by a horse of killas into two branches, averaging from six to eight inches wide, with good stones of yellow ore. It appears the branches will soon re-unite, when I fully expect a great improvement. We have also driven, west on the same lode, about nine feet in the granite, where the lode is two feet wide, composed of gossan, spar, and greens, spotted with grey and black ore. Here the ground is very favourable, and can be driven at 20s. per fathom, as the hills both east and west rise from three to four feet per fathom; so the adit level would come in about 30 fathoms, below the surface—consequently, I would strongly recommend driving both ends. We have discovered in the shallow adit a lode from two to three feet wide, which is intersected about 12 feet from the surface, composed of spar, gossan, and greens, with spots of grey and black ore. We have also further north, a very strong lode four feet wide, composed of gossan, spar, mundic, and greens, spotted with grey and yellow ore. This lode we have seen three fathoms below the surface, and is considered by competent judges, to be of a very promising description. Still further north, at the end of the shallow adit, we have a large lode, nine feet wide, making strong iron on the back, intermixed with gossan; which I consider will be found a very strong copper lode in depth, as the lodes in the adjoining mine carry backs of the same description, and have proved in depth very productive. I beg also to add, that having minutely examined the lodes already discovered, I have no hesitation in saying, that I consider the set to be of a very promising nature, and one well worthy of a fair and an efficient trial.

## WHEAL KAYLE MINING COMPANY.

A general meeting of the adventurers was held, at the account-house, on the 15th inst.—Wm. VAWDREY, Esq., in the chair,—when the accounts were exhibited, showing the labour cost for eight months (May to Dec.) to amount to 852l. 10s. 4d.; for supplies to the same period, 383l. 18s. 10d.—making together 1236l. 9s. 2d., and a balance against the adventurers of 816l. 9s. 2d. The accounts having been allowed, a call of 10l. per share declared, the following report, from Captain Richard Eustice, was read:—"The engine-shaft is sunk 34 fms. below the adit, and 57 fms. from surface, with new pitwork, fixed and completed to that depth; we have, moreover, sufficient pumps on the mine to carry down the shaft to the 40 fm. level, and which are charged in the accounts passed at your meeting to-day. At the 30 fathom level the middle lode fell in with the engine-shaft, and on its course the shaft is sunk about four fathoms, and will continue to follow down the lode, instead of going down as heretofore, perpendicularly. The lode in both ends of the shaft, below the 30 fathom level, will set on tribute at 6s. 8d. in the 1L, and in the present bottom of the shaft it is larger than we have seen it above. The 30 fm. level is driven east of the engine-shaft 14 fms., through a lode of ore which will set at 6s. 8d. in the 1L on tribute. The present end is within seven fathoms of the old engine-shaft, which is full of water below the 17 fathom level; we shall, however, soon water it down to the 30 fathom level, and two fathoms below the bottom of the shaft, in which we shall find a lode of ore 18 inches wide, left there unwrought by the former adventurers. Immediately after we have made the communication at the 30 fm. level, between the new and the old engine-shafts, we shall have a piece of ore ground 21 fathoms in length, which we shall be able to divide out into pitches at 6s. 8d. in the 1L. The 30 fathom level is driven west of the engine-shaft 10 fathoms, through tribute ground, but not so profitable as east of the shaft. During the last few feet the ground has changed, and the lode is greatly improved, and

**HARROW ARROW CONSOLIDATED.**—The adit level, on Wheal Brothers lode, going east, has been driven about 7 fms. this month; the lode is 2 ft. wide, composed of galena, lead, manganite, and carbonate of iron—a promising lode, but poor for silver. The St. Vincent lode adit going west, we commenced driving the cross-cut towards this lode. On the 30th inst., drove about 6 ft., and cut the lode. Driving shaft was expected; and have driven about 7 fms. on its course. The end is wider than it was at the end; therefore, we have not seen the southward end of it yet on the northward side, we have a branch of good saving work for silver, about 4 in. wide, but the whole of the end presents a kindly appearance for making copper.

**WHEAL ST. CLEER.**—A rich bunch of tin has been cut in the 90 fm. level in this mine, but the real value of the discovery has not been yet ascertained, nor would it be prudent to venture an estimate, until the lode has been more fully developed. The engine-shaft is in course of sinking to the 45 fm. level, but some time will elapse before the cross-cut will intersect the lode at that level.

**WHEAL ST. CLEER.**—The lode at this mine still holds as good as when first cut, with every prospect of a continuance, and we hope the company may realise their most sanguine expectations.

**WHEAL POLLARD.**—The water-wheel at this mine was put to work on the 16th inst., and being 80 ft. in diameter, by 3 ft. 6 in. wide, with an ample supply of water, will be sufficient to work the mine to a great depth. They commenced sinking the engine-shaft again on the 19th, which is on the course of the lode, and have raised during the last week some good stones of copper ore; the lode varies from 2 ft. to 3 ft. wide, 18 in. of which consists of fluor, or can, peach, and quartz, spotted with grey and yellow ore throughout; from present appearances there is every probability of its making very soon some good bunches of ore.

**GENERAL MINING COMPANY FOR IRELAND.**—We stated, in our last Journal, that the shares in this company had been allotted, and were selling at a premium on the Dublin Royal Exchange. We have since heard, that the directors are making rapid progress, to be in a position shortly to commence active operations: the deed of association is now in course of execution, and they have full expectation of a certificate of complete registration in about a week, when the directors will submit a statement of their progress and the acquisition of several royalties.

**MINING IN SCOTLAND.**—We hear from another part of Kirkcudbrightshire, of an immense district of iron ore (a red hematite) having been discovered on the estates of Mr. Spalding, of Holme, by New Galloway, and also some copper lodes of promising appearance. These minerals are found about 20 miles north-east of the Broughton Copper Mines. The adventure, we deem, is worthy of attention.

**WHEAL ASH.**—The agent writes that, on this promising mine, there are already three lodes discovered. The south lode is 6 ft. wide, composed of peach and gossan, with a large quantity of manganite, and highly stained with copper; and Capt. Edwards says, that it is the best looking lode he ever saw at that depth. The north lode is 6 ft. wide, composed of gossan and spar, and is also a very promising lode. The distance between the south lode and the middle one is about 10 fms., and between the middle and north lodes about 20 fms. If either of these lodes had been seen in a set by itself, it would have been called an excellent speculation. The wheel pit and bob pit are all ready to take the work, and it is expected that the wheel will be at work in a week.—*Plymouth Journal*.

**MINING IN THE EASTERN DISTRICT OF CORNWALL.**—Sir,—Being a miner for some time resident in this neighbourhood, I, of course, take an interest in the subject; and while in the St. Neot's district, a few days since, nothing gave me more pleasure than the fact which presented itself, of so many mines now in operation—some in embryo, others in infancy; some in their youthful vigour, and others grey with age—and from some “brother chips,” whom I saw about, I gleaned some particulars respecting the “bals” in that locality, the queen of which at present is Wheal Sisters, where numerous hands are employed, and some hundreds of tons of copper ore have been returned. This mine is 40 fms. below the adit, and said to be a promising concern; but I could not very well understand what was meant by the men working four hour's cores, on “best me trust,” &c., in order to make their wages come regularly to 62s. per month. If such be the case, there is evidently some screw loose in the management, and ought to be immediately tightened, as everything of the kind is obsolete in mines in the west, where practical men have the management. The prosperity of the above mine has induced a party to commence operations in the adjoining old mine of Wheal Mary, and steam-engine has been erected for that purpose. Next comes West Wheal Friendship (late Goonlon Down): here, says tradition, little St. Neot reported there were riches enough to pay off the national debt, and over the exact spot he planted a feather, but so many geese have been in the habit of going there, and the deposit of feathers so great, that the identical one has not yet been discriminated.

Stobs' Hill Mine is situate to the north of the Church Town, in granite; here they have erected a very powerful water-wheel. The mine is 10 fms. below the adit, where they have a large and promising lode, and there is no doubt of its ultimately becoming profitable. Wheal Robins has been longest at work of any mine in the parish; it has been judiciously wrought to a considerable extent, with a comparatively small outlay of capital, and about 1500/- worth of copper and tin ore sold, yet it has not realised the original anticipations. Wheal Trevenna is on the same lodes, the opposite side of the vale; and in driving the adit, they have passed through several small branches of copper ore. If you will be kind enough to insert this in the next Number of your widely-circulated and invaluable Journal, you will greatly oblige.—An OBSERVER.

Liskeard, Jan. 26.

**“PRILLING” AND “PEPPERING” A CORNISH MINE.**—Sir,—I beg to send you the following additions to your vocabulary of mining technicalities—viz., “prilling” and “peppering;” the first applies to copper ores, and the last to tin. By prilling their samples, the copper tributaries manage to obtain a better price for their ores than it is really worth; this is sometimes accomplished, by dropping some superior ores on the sampling iron, but more frequently by putting the best ores in that part of the pile where it is most likely to get in the sample; this done, the unsuspecting agent, in selecting what he thinks to be a fair sample, takes ores that will produce more than the average of the pile. These ores are then weighed into the standing parcel, which, being remixed and divided into six doles, is sampled and sold for its real value; then comes the discovery that when every tributary's sample is made up at the standard, for which the parcel has sold, there is found a drawback, amounting, in some instances, to 25 per cent. on value of the ores. A knowledge of this, Sir, induced me to look at my neighbour's pile when being mixed, and, by stating to the agent that they had got the best ores in the middle, I got them ordered to turn it again, but the outside was just all hutch-work, and the middle best ore; and so I begged to have all our piles of ore quartered before sampled, and it became the fashion. I am now working on tin, where the adventurers buy all the tinstuff, but the sampler and stamps captain, finding a deficiency in their stock, are now taking a tinge from every one's work to make it up; and in order to have full price for their work my neighbours are peppering it with a little best work, which they contrive to get into the sample, and they tell me, if I would live among the Romans, I must do as they do; but really, Sir, I wish our manager would employ other men to spall and divide our work, and then there would be no occasion for us to run the risk of being found in, what some people will call, attempting to fraud.—A CORNISH MINER: Helston, Jan. 27.

[We give the foregoing letter, as we received it, for the sake of the information it contains; and, although we have reason to know that the practices referred to are not very general, we trust “A Cornish Miner’s” letter may prove the means of their utter abolition, by attracting attention to the possibility of such shameful frauds being attempted.]

**TREWAVAS MINE.**—Sir,—Your correspondent, Mr. Edmund Turner, has in a measure answered your observations of the preceding week; but, I would beg to ask him, as one of the largest adventurers in the mine, whether dividends have not been declared, and paid to the shareholders out of funds raised by loan from the bank, of which he is a partner? He may, or may not, have been a member of the committee; but he is too much of a man of business not to be aware of the fact, or otherwise. Mr. Turner complains of remarks made by your correspondents; perhaps he will explain his conduct, as regards his connection with Wheal Williams, and the terms on which the mine was taken from the Duchy.

Hall of Commerce, Jan. 29.

R. S. T.

**TREWAVAS MINE.**—Sir,—The letter of Mr. Edmund Turner, the member for Truro, inserted in your last week's Journal, is satisfactory, as far as regards the intentions of the bank having a claim upon the adventurers; and at our meeting just held, but which has been adjourned until the 31st inst., the accounts rendered show that if the arrears of calls be paid up by the adventurers, a sum of 2829L 1s. 5d. is the entire amount of the balance. Mr. H. Williams has given notice of motion for the sale of the materials; but this, I do not think, will be carried.

Truro, Jan. 28.

**RAILWAY IMPROVEMENTS.**—Sir,—I observed your notice of last week as regards Messrs. Greenhow's patent for his proposed geometrical line of railway, a prospectus of which is now before me; perhaps those gentlemen, or some of your scientific correspondents, will say how far the lateral pressure arising from the converging spokes affects the question of friction, which appears to have been lost sight of?—A WORKING ENGINEER: Rotherhithe, Jan. 29.

J. S.

## THE MINING JOURNAL, AND

### WHEAL ST. CLEER.

SIR,—I was much surprised to see an article in your columns of last week, using my name as an authority for the value of the tin lode recently cut in Wheal St. Cleer. I think it but fair to me, that you will state on whose authority you gave place to that insertion, as publicly as I assure you, that I never mentioned any value to it whatever. The tin is cut in the 90 fm. level, and we are down with the engine-shaft to the 45 fm. and, in about two months, we hope to cut the lode at that depth; judges may then form an estimate of its value, but, until then, it is impossible to do so.

W. RENDLE.

18, Octagon, Plymouth, Jan. 26.

We can have no hesitation in stating that the information was furnished us by Mr. Carne, of Plymouth, who referred to Mr. Rendle as his authority, on which we could not, for a moment, hesitate to give insertion to the assumed valuable discovery. We presume there must have been some error in the first instance—certainly, none existed with us.]

### KIRKCUDBRIGHTSHIRE MINING COMPANY.

The committee of the Kirkcudbrightshire Mining Company request the Editor of the *Mining Journal* to state, in reference to the remarks in his last Number, under the head “Notices to Correspondents,” that the committee are ready at any time to furnish information to shareholders, on application to their chairman, E. A. Crouch, Liskeard.—Jan. 26.

### ACCIDENTS IN COLLIERIES.

SIR,—The suspended inquest upon the explosion at Mr. Russell's Colliery, in South Wales, has induced me to address you upon the subject generally, and to express my regret, in common with a great portion of the public, that so little progress has yet been made as to any remedial measures in the affair of accidents. Inquest after inquest takes place; and although, in many cases, there are whisperings of something wrong, yet the invariable verdict comes out accidental death, even when life is lost by the breaking of a rope infamously unfit whereupon to trust human life—still it is accidental death. As to insulated cases, they are not material; but in such a case as this at Mr. Russell's Colliery, the leading questions ought to be to elicit what sort of system the works were being conducted upon—viz.,

What the nature of the downcast and upcast shafts?

What artificial means had they of producing a ventilating current?

Was that current an effective one?

Were the works under the management of any experienced or scientific man?

Were there safety lamps?—and, were they under the guidance of any responsible persons?

If the colliery was fiery, were the working places aired after the most approved principles? or,

Were the men left to their own discretion, as to the use or otherwise of safety lamps?

Were the works carried on by butties, or under the proprietor and agents?

If there was great lack of science, or there was excessive parsimony in the conduct of the works, so as indirectly to incur risks and evil consequences, such conduct on the part of the proprietors should be deprecated—for what is less than manslaughter for a person to jeopardise men's lives, because they are either unacquainted themselves, or because they will not employ persons who do understand the acknowledged principles of safety?

I trust these few observations will add a mite to your exertions in the other's cause.—LOOKER-ON: Newcastle, Jan. 27.

### ON COLLIERY EXPLOSIONS.

TO THE EDITOR OF THE TIMES.

SIR,—How often have I regretted, for the sake of humanity, that you have not wielded your powerful pen in the cause of the poor miners, whose lives are perpetually (and throughout every part of the country) sacrificed to ignorance, carelessness, avarice, or some other unjustifiable motive. At this very moment a coroner's inquest in South Wales is holding over till the 4th of next month, for the avowed purpose of enabling Government to send a representative, to examine as to the loss of the lives of 36 individuals by explosion. This reminds me of the Government inspectors putting forth a report so void of utility or plain reasoning, that it was laughed to scorn both by learned and unlearned. Then followed the Jarro explosion, whereby 40 persons were killed; and Government, at the instance of the colliers sent down Mr. Lyon Playfair to sift the circumstances, and give the public the benefit of his investigations. This report seems to have been strangled in the birth, or rather to have given place to that upon the potato disease. The subject has been in the hands of Lord Ashley, of Sir J. Graham, of Mr. T. Duncombe, and even the Prime Minister; yet it is either thought undeserving of attention, or they seem unable to devise means wherupon to interfere.

Can you not, therefore, Sir, turn your earnest attention to the subject, and acquire information to the various risks which these poor people run, and which are so awfully magnified by conduct which could under legislative enactment be greatly checked. The chief causes of the loss of life may be enumerated thus:—

1. Explosions.
2. Breakage of ropes or chains.
3. Imperfect machinery.
4. Falls of stone in the mine.
5. Inundation of water.
6. Unskilled agents and contractors.

With regard to explosions, it must be obvious that a good ventilation is the best antidote; and if one system is better than another, how easy would it not be to enact a general standard?

**Breakage of ropes or chains.**—In many cases these implements are upheld by contractors, whose fanciful interests lie in wearing them much longer than prudence would dictate—hence needless risk.

**Imperfect machinery.**—How many lives are sacrificed in the ascending and descending by bad machinery! Where the proprietor's own life is not exposed, he overlooks those daily risks which his agents are perpetrating.

**Falls of stone, &c.**—This danger is greatly obviated where ample attendance upon the miners is provided for, with a sufficient supply of timber, &c. Where these are wanting from motives of parsimony, the risks are fearfully increased.

**Foundation of water.**—Oftentimes the result of want of plans, or of employing persons without adequate skill, in the mining under rivers, &c.

**Ignorant managers and interested “butties” or contractors are fruitful sources of mischief.**—My intention is to show you how useful and necessary it is that these matters should be overlooked by persons under the authority of Parliament. Coroners' juries may sift and search into the cause of this, or the cause of that; but what we want to get at is, the prevention of the mischief, and to make some step forward, assuaging the miseries which overtake the community upon the occasions of these frightful destructions.

As to Government sending a scientific philosopher, who is a stranger to practical cause and effect, and who is ignorant of the principles of practical mining, they do but mock the subject. The colliery viewers, or mining engineers, are many of them men of good education, and scientific knowledge, in addition to which they serve years of apprenticeship to the details of mining, ventilation, &c. How much more fit are men of this class to attend these investigations than even the learned Faraday, &c.

Well it would be were you to follow a similar course to what you have adopted in Ireland, and send a commissioner to attend one of these inquiries—for instance, the coroner's inquest in South Wales as mentioned in your paper of I forget the date.

It is a common observation, that because the lives of lords and bishops, and M.P.'s are not often exposed to the horrors of coal-pit, the recitals of these harrowing accidents are heard unheeded; whereas upon the subject of railway and other surface accidents they are keenly alive, and they therefore legislate, and the persons engaged in that branch of mineral industry.

I trust that you will turn your great influence towards this humane object.

HUMANITAS.

### MINE ACCIDENTS.

**Messrs. Alfrey's Colliery, Abercarn.**—An accident, attended by fatal consequences, occurred here, by the breakage of a rope, attached to a bucket, on which four men were descending, two of whom were instantaneously killed, and the others so much injured, that their lives are despaired of.

**Tredgar Iron-Works.**—An accident, arising from the bursting or giving way of the large pond, constructed at these works some short time since, in addition to the damage done in sweeping down several cottages, was attended by loss of life—one woman being killed.

**Fordham Works, Swansea.**—J. Phillip was killed by a fall of coal.

**Newcastle, Bridgeton.**—E. Williams was killed at Sir R. Price's, Tonbridge.

**Oldbury.**—J. Moss was killed in Messrs. Whitehead and Underhill's Colliery.

**Levant Mine.**—As J. Eddy and T. Robins were running down some rubbish, a greater quantity than they expected gave way, burying Eddy, and knocking Robins into a winze—both, however, were speedily released, and are now in a fair way of recovery.

**Hough Hall Colliery, Durham.**—M. Atkins was killed by a fall of stone.

**South Hetton Colliery.**—J. Newton (aged 14) was killed at this colliery.

**Rowley Regis, Staffordshire.**—Remarkable Escape.—On Monday last, a bankman, named John Davies, who was employed at one of the pits belonging to the New British Iron Co. (called the Black Waggon), was in the act of pulling the skip to the mouth of the shaft, the dog hook gave way, and threw him backwards into the shaft; but, having a good deal of presence of mind, he caught hold of part of the framing of the shaft, and hung there till one of the chartermasters, of the name of James Bunn, caught hold of his clothes, and, with the united efforts of two or three men who happened to be on the spot, pulled him out of his precarious position. Benjamin Pearson, another of the chartermasters, was coming up the shaft at the time, and had Davies fell, he would, in all probability, have thrown him out of the skip, and both must have perished. The shaft is 240 yards deep.

**Holytown, Glamorganshire.**—J. Hangewood was killed by a fall at the No. 5 pit, Newershaw Colliery, the property of Mr. Watson.—Another miner, named Patterson, was also killed at the Chapelhall Colliery.

**Preston.**—J. Horrox was burned to death at Mr. Deardin's colliery, Birtlecum, Bamford.

**Rosebank Colliery, Cambuslang.**—Hector Stewart and his son lost their lives while proceeding to their work in this colliery—it is supposed their lamps caught the fire damp, when an explosion took place, hurling the poor fellows nearly 40 yards.

**Kingscros.**—W. Worton was killed in Mr. S. Chavasse's ironstone pit.

**Gateshead Colliery, near Kilmarock.**—Two miners, named McNamee and Wilson, were killed while engaged in removing props from an old pit.

### PROGRESS OF FRENCH MINING INDUSTRY.

[FROM OUR PARIS CORRESPONDENT.]

A royal ordinance, bearing date, Sunday, the 25th, and inserted in the *Moniteur*, of this morning, authorises the “Compagnie des Fonderies et Forges de la Loire et de l'Ardeche,” to divide each of its present shares into four separate shares, and to augment its capital by the creation of 800 new shares, of no less than 4000 francs each. This increase of capital is, no doubt, principally owing to the extension of business, which has taken and will take place, in consequence of the enormous demand of iron for the railways. In most of the forge and foundry establishments of this country, changes are taken place, or are in contemplation, from the same cause; in several instances, the establishments change hands; in others, are handed over to joint-stock companies; and in almost all, as in that of the Loire and Ardeche Company, a considerable increase of capital is demanded. All this shows that our ironmasters are determined to make a hard push to place themselves in a favourable position as possible, with respect to the demand from the new railways. No one can blame them for so doing; but, after they shall have done all they can, they will be constrained to admit, that foreign assistance must needs be demanded. For, bearing mind, that they cannot now supply the annual demand for iron; yet that the railways now in progress, or authorised, are, according to no mean authority than the Minister of Public Works (*vide* his speech on Saturday), not less than 5000 kil. in extent, all of which must be finished in six years, at the outside. Besides this vast extent of iron roads, it is quite certain that at least 2000 or 3000 additional kil. will be voted this session, and the completion of them will also be required in six years, if not in less.

A recent number of the *Moniteur* of Algiers, the official organ of the colony, contains royal ordinances, signed by King Louis Philippe, recording four concessions of iron mines. One is a concession of Bou-Hamza to M. Peron; another of Meboudjah, to le Marquis de Bassano; the third of the Harzes, to M. Gerard; and the fourth of Ain-Morkha, to M. Talabot. The first three

## Original Correspondence.

## THE IRON TRADE.

SIR.—The probability of transactions in railways being henceforward more directed to registered shares than to scrip, the effect of this change will be to promote the earlier completion of the railways required for the public accommodation. Amongst these are many of the 162 lines that received the Royal assent in the two last sessions of Parliament, which, with the railways previously in existence, are computed to require the entire make of iron for nearly, if not the whole of, the next two years and a half. Within that period, other railways will be making from some of the 686 projects remaining at the Private Bill Office out of the 815 which have been deposited with the Board of Trade for the present session, and computing that less than one-third of these may obtain their bills (and one-half of this reduced quantity consist of unopposed short extension lines, likely to be commenced without delay after the Royal assent is given to them), the prospects for iron this year are most satisfactory, without any estimate for foreign demand. This may be expected from some of the foreign undertakings conceded to proprietors, with stipulations for the supply of materials from England free of duty; likewise, from the British possessions abroad where railways are being constructed, and, should the demand for exportation be further increased by the admission of British iron into France, the market will thereby receive a further considerable impetus.—MERCATOR: Jan. 29.

## MINING IN THE UNITED STATES—THE LEAD TRADE.

SIR.—Being a constant reader of your valuable Journal, I have noticed two characteristics which seem to pervade its columns, and, especially, the communications of your correspondents—a want of correct information in relation to the mineral interests of the United States, and a disposition to treat Jonathan somewhat cavalierly; I am aware that he is a rough youngster, somewhat vain of his parts and country, but he is descended of a good family, and when he has sown his wild oats, and seen more of the world, he will not, we hope, discredit his ancestry. I refer, more particularly, to your correspondent, "J. W.", in your Journal of the 8th Nov., which has induced me to address you on the general subject of mining in the United States. It will be my endeavour to state facts as far as possible, owing to the extent of our country, the diffuse action of the separate interests, and the want of any combination in either the metal market, or of operations connected with metals and mining, it will be impossible to give what will be properly statistics; but general facts, which are somewhat near the truth, will give your readers a better idea of mining interests with us, than they seem now to possess, and I hope prove interesting. It is matter of surprise that in Great Britain so little interest is felt, and so little seems known of mining, and its collateral interests, in the United States. While your readers are made familiar with operations in Norway, Russia, France, Spain, Cuba, Mexico, and South America, whenever the subject is alluded to in the United States, the most ridiculous statements are all we meet. This was strikingly exemplified in the remarks of Sir C. Lemon, M.P., at the meeting of mine adventurers, at Truro, in Jan. last, when the subject of smelting copper ore in the United States was under consideration; his statistics on the subject of coal in the United States excelled any which Jonathan has ever been able to furnish. I shall have occasion to allude to this when I write on the subject of copper, and, therefore, now dismiss it for the present. As "J. W." has called attention to lead, I shall take that metal as the subject of my present communication.

The lead district of the United States is confined to the states of Missouri and Illinois, and the territories of Wisconsin and Iowa. Scarcely any other localities have ever furnished the metal to any extent; the lead mines of Rossie, on the south shore of Lake Ontario, a few years since, gave promise of advantage, but they have been abandoned, and at present no lead is obtained, except in the districts mentioned above. Over this extended district, which is many hundred miles in extent, lead mining is carried on by small groups of miners working on their own account, or on account of small adventurers, with no large companies or accumulation of capital; the galena raised by them is sold at the mines, or delivered at the nearest smelting works at a price per 1000 lbs. The smelting establishments are more extensive concerns, but even these are associations of a few individuals with small means, and scattered over a large area. The mining operations are mere pits in the diluvium—no expenditure for drainage is attempted, and but little rock is excavated; most of the implements and operations are of the rudest kind, scarcely extending beyond the simple windlass and kibble; hardly a horse-whain, and, much less, a steam-engine. When water becomes troublesome, the miner abandons his position, and sinks a new pit, either on the same vein, or on a new one, which his knowledge of the indications on the surface soon enables him to find. This characteristic of the lead deposits of the west, large and productive veins of galena in the diluvium, is an interesting feature in the geology of the United States, which I hope the present visit of Professor Lyell will enable him to investigate.

The quantity of lead furnished annually by the mines of the United States, will, probably, reach 22,000 tons; the official report of 1844 gives a result of 44,000,000 lbs., and, as the quantity is steadily increasing, and as much escapes the notice of the Government, it is probably safe to assume that the result for the present year will be as above. By the returns of the Customs, the exports of lead from June 30, 1843, to June 30, 1844, were as follows—viz.: To France, 6,749,764 lbs.; Great Britain and dependencies, 4,175,633 lbs.; Belgium, 2,504,604 lbs.; China, 1,854,516 lbs.; Russia, 1,175,746 lbs.; other countries, 2,230,144 lbs.—total, 18,420,407 lbs., or 8223 tons. Thus, you see that, notwithstanding the statement of "J. W.", there were exported to Great Britain and her dependancies in 1844, 1861 tons of lead from the United States; but as Great Britain has an ample supply from her own mines for her own use, it was, no doubt, re-exported to other countries, and, doubtless, the statement of "J. W.", of the quantity entered for home consumption is correct, yet it is supplied to the general market, and has its influence upon the mines of Great Britain.

The principal points at which the lead of the west is accumulated, are Galena, in the north-west corner of Illinois; Dubuque, in Iowa; and St. Louis, in Missouri: from these and other points of accumulation, it is transported by steam-boats to New Orleans, and is thence shipped direct to Europe, and to New York, Boston, Philadelphia, and Baltimore, from whence it is exported to China and other parts of the world. The various manufactures of lead, as white lead, shot, lead pipe, and sheet lead, are almost adequate to our wants, and very little is imported. Hitherto, the lead of the United States has furnished no silver, and it probably does not contain silver in quantities sufficient to pay for extraction, if at all. The whole lead district of the west is a new and comparatively unoccupied country—rich in the quality of its land for agricultural purposes, independent of its mineral wealth; and it is reasonable to expect that for a long period the product of lead will increase, as the country is occupied by inhabitants, and the deposits are more extensively developed by new explorations. The miners engaged in the business are from Cornwall, Wales, Ireland, and Germany, with a large number of Americans, who have acquired the methods of working from the European miners. The method of smelting in use is with the Cambelane furnace, with wood and coke, or charcoal. In the early days of lead smelting in the west, the rudest possible methods were in use, but the business is now tolerably well understood.—G. B.: American Institute, New York.

## AMERICAN LEAD AND COPPER MINES.

SIR.—I have somewhere observed another of those funny paragraphs, respecting American mining, which occasionally find their way into the London papers; the one now alluded to purports to be copied from "Rubio's Rambles," but who Mr. Rubio is, or what his profession may be, I know not. Of one of two facts I am, however, convinced—that he is a genuine Yankee himself, or his blazing description of the "American Lead and Copper Mines," must have been obtained from one of those imaginative souls. He tells us—"The lead district, near St. Louis, extends over two millions of acres, and with the adjoining states of Iowa and Wisconsin, forms, undoubtedly, the richest region in the world for that mineral; beating the English and Spanish mines already in amount of produce; but, in a few years, it will be equal to the consumption of the whole globe!" Oh! Mr. H.—Walker! some day I may send you a few statistics on this head—when the returns for America, Spain, and England, have been made up to the 5th inst., for 1845—at present, I cannot spare time just now to say more, than that the produce of America in 1844 was between 13,000 and 14,000 tons; England, in ditto, 15,000 and 16,000 tons; and Spain, in ditto, 4000 and 5000 tons. I believe the returns for 1845 will show, in a stronger light, the absurdity and extravagance of Mr. Rubio's statement. He tells us, in continuation, "that they have not yet adopted the method which the great leadminers of Yorkshire and Northumberland have, of refining lead; consequently, many

tons of silver, say, seven or eight, are thrown away annually by the Americans on the banks of the Mississippi, as I reckon, every ton of their lead will produce five ounces of silver." The Americans, I "reckon," had better abstain from refining their lead, if its produce will not exceed 5 oz. of silver in the ton. I am sure you will, from your known experience in such matters, affirm the correctness of what I have just said. "Iron, Mr. R., says, is so abundant, to the south of St. Louis, that it seems to be, on that account, quite disregarded." This astounding statement indicates an enormous amount of Yankee simplicity and cunning. What would the Guests, the Crawshays, the Thompsons, &c., not give to have the "south of St. Louis" removed within the boundary of the principality? But this is not so rich as the next sentence in Mr. R.'s exquisite rambles:—"At the Pilot Knob and Iron Mountain the ore is so rich and metallic, that it may be beaten out into rough implements on the spot!" Now this is iron ore, and "no mistake." I should like to pay a visit, or, rather, have a "ramble," to Pilot Knob and Iron Mountain. I expect we shall, some of those days, hear that Jonathan has discovered pigs and bars of ready-made iron, vegetating unaided, or unassisted, by human interference.

Lastly, Mr. Rubio tells us, that "at Copper Harbour, in the neighbouring state of Michigan, on the shores of Lake Superior, a company in Boston had secured us what they consider the richest copper mines in the world, extending over 250,000 acres." This enterprise is quite in its infancy, having been only just discovered, but 1000 tons of ore were shipped to Boston at the opening of the navigation in 1845, which produced 700 tons of metal." Only in its infancy yet! Bless us, what is to become of us in all this part of the globe? At no distant period, and America will supply the whole world with lead, iron, and copper. Talk about the Corn Laws being "doomed," and the effect of their repeal on the interests of this country! Whee! a mere bagatelle, compared with those which must inevitably result from the stupendous mining operations in brother Jonathan's prolific dominions. It is a strange fact, notwithstanding the American's bounce respecting the richness of their mines, that the English lead market has not been in such a healthy and prosperous state for some years past as in 1845, and it is, at this moment, in a sound and steady condition—pig lead having advanced in price last week; and, moreover, it is a gratifying fact, that the American lead landed at the ports of London and Liverpool cannot find a market, but is all re-shipped again. Our home market is safe; or, if all I hear be true, our exports are better than they were a few years back. In a word, Sir, the American mines are all surface ones, and, consequently, very uncertain in their duration.

Pimlico, Jan. 30.

J. W.

## THE ACCIDENT AT FORFAR.

SIR.—The late accident at Forfar, by which two men were buried alive, the earth having given way and entombed them, reminds me of a similar catastrophe, which occurred many years ago, when I was at Downham Market, Norfolk. It ought to be premised, however, that in the case at Forfar, everything appeared to have been done, that humanity could devise, or intelligence achieve, for the rescue of the victims, one of whom was happily saved—their "exceeding great reward." The case I have referred to, was that of a chimney sweep, of the name of Samuel Hall. A neighbour's pig had fallen into a well, long dried up, and but lightly covered; Hall volunteered his aid, and descended the well, the bottom of which he had no sooner reached, than the whole gave way, which was immediately followed by the slip of the hill, at the foot of which the well had been excavated—Samuel Hall was thus entombed under a superercent mass of earth (loose, indeed) of 43 feet! The means adopted for his recovery were extremely judicious, and I watched them with intense interest. The new excavation was, necessarily, commenced at some distance from the site of the well; and, after the laborious and incessant labour of 30 hours, cheered and animated by a worthy and benevolent member of the Society of Friends—Mr. Zachary Clark, author of the *Norfolk Charities*—they reached the hat of the buried victim: He was disinterred alive and well! On questioning Hall, subsequently, he informed me, that he was upheld in nearly a vertical position; his hat forming a shield of protection for his head and face; his arms were pinioned to his side, but he could just raise his hands and keep the earth from his mouth. He also informed me, that he was entirely sensible during a great part of the time, and he distinctly heard and could recognise the exertions made for his rescue; for the latter period, he was in a state of lethargic torpor, when his sensations, or feelings experienced, were of a highly pleasurable kind! On the following morning, I went with him to survey the deep grave, where he had been so strangely entombed, and from which he had been so providentially delivered. The scene at the parish church on the following Sabbath was to me deeply impressive, and affecting to all. Samuel Hall and his family were in a front pew, and were surrounded by those who had volunteered their philanthropic exertions in the excavation. The preacher took for his text, the truly pertinent language of the fugitive Hebrew seer—"I went down to the bottoms of the mountains, and the earth was about me with her bars for ever; yet hast thou brought up my life from corruption, O LORD MY GOD!" I record the incident to prove, that, in similar catastrophes, we ought never to despair, which our great Lexicographer defines to be "the frost work of the soul." Let the cheering motto, therefore, ever be, NIL DESPERANDUM AUSPICE DEO.

Portland-place, Hull, Jan. 17.

J. MURRAY.

## THE MOUTH BLOW-PIPE.

SIR.—The question, which "Chemicus" puts, is a very natural one. The negative gases, nitrogen and carbonic acid gas, must, to a certain extent, counteract the energy of the flame; but this is far more than compensated by its concentration to a point by the impulse; moreover, the air from the mouth is at a temperature of 98 deg., and thus very much higher than that of the ambient atmosphere. I am of opinion, also, that both the carbonic acid gas, and the aqueous vapour of respiration, are decomposed—an inference in which I am warranted, by the fact, that phosphorus will burn, with lambent flame, in carbonic acid gas, showing its partial decomposition; and the experiments of Dr. Fife seem conclusive, as to the latter.—J. MURRAY: Portland-place, Hull, Jan. 15.

## STEAM-BOILER EXPLOSIONS.

SIR.—I perceive that Mr. Fairbairn, in his recent evidence, in the case of the terrible catastrophe at Bolton, has given an opinion substantially the same as mine—that which I have invariably maintained for many years, and subsequently accredited by the testimony of M. Arago, and the researches of the Franklin Institute. That the water is insulated by the heated walls of the boiler, when at a high temperature, cannot be doubted—a sudden burst of steam from a local patch, on the bottom of the boiler, by the flame impinging against it, conjoined with the imperfect conducting character of the fluid medium, is entirely sufficient to account for the phenomena of explosion, without any supposititious assumptions. In such cases, the common safety valve is worthless. I have invariably insisted on the absolute necessity of two safety valves, and those of greatly increased diameter. I have, also, all along repudiated the idea of the assumed ignition of explosive gases, of which no evidence has ever been adduced; nor, on chemical principles, can the formation of these gases be accounted for, still less their ignition, were we, *causa argumenti*, to grant their being formed.—J. MURRAY: Portland-place, Hull, Jan. 15.

## THE GAUGE QUESTION.

SIR.—I have been much surprised to see, that in the "battle of the gauges," if I may so term it, the arguments which have been brought forward on both sides, in support of the system advocated by the writers, have none of them entered into, and explained, the effect the broad or narrow body in motion will have on the primary cause of danger to be apprehended from increased speed. Of course, you will at once perceive, that I mean the centrifugal force. They all seem entirely to have overlooked, or to be ignorant of, the fact, that a body in motion is subject to laws and influences attendant on, or connected with, that motion, which are created by it, and immediately cease to operate on the body becoming quiescent. Now, the first inquiry ought to be, How do the tendencies of the centrifugal and centripetal forces act and react upon each other, when a train of railway carriages is put in motion? Also, how the tendencies of those forces will be best kept in equilibrium, during the rapid passage of a train. By a strict inquiry into the laws which govern those forces, and an examination into their true relations towards, and consequent effect on, each other, it may very easily be ascertained to a positive certainty, whether the broad gauge, or the narrow one, is the safest, when the speed of the train is great? I will say no more at present, but will return to the subject in a future letter and then point out the effect a broad body, or a narrow one, has in disarranging the balance of those forces; also, the way in which the danger to be apprehended from the tendencies of the centrifugal force is increased, by the very hazardous expedient now generally resorted to, of adding weight to the carriages, to steady them, as they say. I trust that those remarks will call the attention of the commissioners to the real point at issue. SIMPLEX.

London, Jan. 27.

## THE SAFETY LAMP.

SIR.—Some months ago, Dr. Murray lectured in Dudley, on the dangers in mines; he then recommended the safety lamp of Upton and Root, as being one which could safely be relied upon by the miner, especially when he has to work by it for any length of time. Believing such to be the case, I purchased one, but, to my surprise, when I tried it in the mines, I found that it was impossible to keep it alight, especially in a current of air; and when I took it into the workings, which were impregnated with inflammable gas, it just gave a flash, and went out. It is true enough, that it is perfectly safe as far as that there was no danger of the flame coming in contact with the gas outside the lamp, but what is the use of it any further than that,—it is utterly impossible for the miner to work by it. I afterwards purchased one of Dr. Clanny's lamps, and I found that it answered every purpose required—the only fault being that the outside casing was formed of glass; and, when warm, was liable to fracture on any water falling on it. I must beg to apologise for trespassing on the columns of your valuable paper, but I merely do it, fearing others may be led into the same mistake as I have been.

Cornwall, Jan. 27.

A MINER.

## THE RECENT FALL OF THE VIADUCT ON THE ROUEN AND HAVRE LINE OF RAILWAY.

SIR.—Your readers will well remember that I ascribed the catastrophe of the fall of a railway tunnel on the continent some time ago, to the improper materials of the brick. It is worthy of serious inquiry, whether the recent destruction of the viaduct on the Rouen and Havre Railway line, may not be reasonably ascribed to a similar cause. If clay contains fragments of limestone or chalk; as a matter of course, bricks containing such fragments, when burnt in the brick-kiln, must be altogether worthless, or even worse than worthless, because the carbonate of lime, from being calcined, is reduced to quicklime, and such bricks will burst, on the contact of water, while their destruction will be more complete and ruinous by frost. I need not remind you that Normandy abounds in chalk, &c.; the probabilities are, therefore, that this is the true solution of the cause of the catastrophe—certainly, the very meagre report of the engineer throws no light on the question. The subject is one of ultimate importance to contractors and engineers.—J. MURRAY: Portland-place, Hull, Jan. 23.

## STEAM-BOILER EXPLOSIONS.

SIR.—The terrible catastrophe of the steam-boiler explosion at Bolton has riveted my wandering thoughts more immediately to that question; and, reflecting on the phenomena of the geysers of Iceland, and what I believe to be the cause of their rise into the basin, and elevation in the atmosphere, I think similar means might be provided to ensure safety from an undue and extraordinary force and pressure of steam. Suffice it to say, that I had constructed an apparatus for the purpose of illustrating the phenomena of the geysers, and the invention acts admirably. I propose, therefore, to have, independent of safety valves, a tube, or pipe, descending into the water in the boiler from above, to a certain depth. A piston rod at the top of the pipe, loaded with a definite weight, and working in a frame, would be raised, when the force of the steam exceeded a certain amount, by the pressure of the steam on the surface of the water surrounding the pipe. The hot water would thus be forced up, and overflow at top; and this would be immediately followed by steam, as soon as the lower orifice of the pipe was above the water: this simple provision, there can be no doubt, would obviate all risk of explosion, and would be infinitely preferable to any safety valve whatever.

Portland-place, Hull, Jan. 29.

## LEAVENED BREAD.

SIR.—Though the question, which heads this communication, be one rather foreign to the topics of mining interest and railway questions, which find a record in your columns, yet it is one in which miners, and those connected with railways, as well as others, have a deep interest, while it is, at the present time, of no common importance. Your Journal circulates widely on the continent, and may benefit generally, if miscellaneous matters are occasionally allowed to attempt the monotony of merely mining and railway intelligence. Besides, Sir, I will frankly confess, my present lucubrations are only preliminary to others, under your approbation, commendingatory of what I believe to be (and mean to endeavour to demonstrate, as erroneous,) the crude and unphilosophical notions of Dr. Buckland, on the food for man and beast. You are aware, that a patent has been lately obtained for a new process of making leavened bread! It consists of hydrochloric (or muriatic) acid, and the carbonate of soda, in due proportions, to form, on their combination, muriate of soda, or "common salt." On this chemical action taking place, of course, the carbonic acid gas is liberated, and interspersed throughout the mass of dough; its volume is thus expanded, and, the heat of the oven dissipating the aerial globules, the bread becomes cellular, or spongy, and is called "leavened bread." I need not explain the ancient process of the leavening of bread, which, elaborating acid matter, eventually gave rise, under certain circumstances—e. g., if long preserved—of a poisonous parasitic fungus; hence the benevolent interdict of a prospective Providence on the exode. Our modern substitute of yeast, or barm, obviates the risk of such poisonous elaborations, while the full amount of the process of "leavening" is secured. Now, only WHEATEN flour, which alone contains that highly-important nitrogenised principle, called GLUTEN, the very element of animal muscle, is susceptible of being thus leavened; and in the precise ratio of its quantity, will be the relative amount of the phenomena of imperfection, or fully constituted leavened bread. Here, then, we have an admirable test for the relative value of WHEATEN FLOUR, emphatically called "the staff of life"—an expression as philosophical, as it is just. In the memorable year 1816, from the sprouting of the grain, and the consequent decomposition of the gluten, the process of leavening was imperfect, and, in many instances, impracticable. Now, by the patent process, any flour, however bad the description, and whether wheaten flour or not, may have as fair a show of leavening as the very best wheaten flour, and thus a serious and destructive deception be practised on the public. Besides all this—however free from adulteration may be the bicarbonate of soda—commercial muriatic acid is always contaminated with ARSENIC. These are the grounds on which I have repudiated the new patent process, and on which I too condemned it, in my correspondence with Sir George Mackenzie, the advocate of the process in question. I regret to say, that I have found, in the many samples of wheaten flour I have analyzed this season, the amount of gluten miserably deficient. In a specimen of "seconds" flour, however, which I lately examined at Newport Pagnell, Buckinghamshire, the quantity of gluten was great—seldom, indeed, exceeded. Adulteration of bread by alum, though a diabolical deed, and one "to be punished by the judges," I find to be almost universally prevalent. Potatoes are very commonly mixed with wheaten flour—in ordinary seasons a dishonesty, this season an evil, to be dreaded and deprecated, on account of the prevalent disease.—J. MURRAY: Portland-place, Hull, Jan. 15.

IMPROVEMENTS IN THE ELECTRIC TELEGRAPH.—Nearly every nation is not only adopting the benefits of the electric telegraph, invented by Messrs. Wheatstone and Cook, and so much improved by them, but also trying if an economy may not be introduced. The French have been making some experiments recently, as it is a well authenticated fact, that it is completely useless to employ two conducting wires for telegraphic communication, as the same deviation produced by the current when one wire only is used, is much greater than that of two wires. Two explanations have been given on this fact. Some have made out that the earth replaced the suppressed wire, and that the small portion of conductivity of the globe was fully compensated, far beyond that by its dimensions—so that the earth acted similar to a moderate conducting wire, but having a large diameter. Others have refused to admit the return of the electric current through the reservoir; and they have stated, that the two contrary electricities of the pile became diversified in the earth, at the two extreme stations. M. Matteucci has tried for some time to decide these two opposite opinions; and the following is the experiment which he imagined for that grand object:—Between the two extreme stations of an electric telegraph, were two wells or pits, distant from each other several kilometres. The celebrated Italian physician then plunged two metallic plates of the same nature, which were put in communication by means of an isolated wire. He thus discovered, in this wire, a current which moved or attracted the dipped needle of from 35 to 40 degrees, which ceased to exist, when he interrupted the direct current,—and it changed its direction, when he changed the poles from their place. Numerous experiments have been made on this discovery, which have fully proved, that the one line of wire can be introduced to more advantage—but, above all, it is its great economy, which will be an important saving to railway directors, not only in France, but also in this country.

BELGIAN ENGINEERS.—It appears, that the Belgian Government has granted the permission to the Russian authorities, to employ their engineers for the directing of the railway works from Odessa to Sebastopol.

## **IRISH WASTE LAND IMPROVEMENT SOCIETY**

It is with much pleasure we notice a tract, describing a visit to the Kilkerri estate of the IRISH WASTE LAND IMPROVEMENT SOCIETY, by N. L. BEAMISH, Esq., F.R.S., and recommending the reclamation of the waste lands of Ireland, as a remedy for the effects of the impending scarcity. Approving, as we always have, the intentions and proceedings of this society, and advocating its interests to the best of our ability, we cannot but hail the appearance of the pamphlet at the present moment, so "big with the fate" of the peasantry of Ireland; while his description of the "natives" of Connemara is so graphic, of the picturesque scenery of the far-famed bay of Galway and the Aran Isles so stirring, and its whole tenor so marked by good feeling, and a hearty desire to benefit the poor inhabitants of Ireland, that while we shall be able to do it but feeble justice, we shall give some extracts therefrom, and sincerely recommend the work to general perusal. It appears, that the amount of quit and crown rents, received by the Government from Ireland, is annually 75,000*l.* The Crown by this becomes, of course, one of the absentee landowners; and there could not be a more legitimate and unobjectionable application of this income, than applying it for the purpose of the reclamation of waste land, of which there are estimated 4,600,000 acres. This sum would reclaim annually 7500 statute acres, give employment to as many families now struggling with pauperism, and thus, in a few years, reclaim the whole of the waste lands applicable to agriculture. After a humorous account of his journey from Flynn's Inn, situated about 13 English miles from the estate, over bog, mountain, and the bay, only accessible by horse, foot, and boat, he at length, at 10 o'clock, on a fine night in September last, arrives safe at the society's homestead at Glencormac, and the next morning proceeded, on Connemara ponies, with Col. Robinson and Mr. Hazell, the manager, to view the farms. Here he found luxuriant crops of oats, barley, potatoes, and clover, strongly contrasted with huge granite boulders, which every where protrude; and yet with all that the society have done on this estate, from being crippled for want of capital, 8000 acres, or fifteen-sixteenths of the reclaimable land, yet remains to be converted. The farms, already in occupation, average 10 Irish (or 16 statute) acres, with a right of pasture on the mountain for a limited number of cattle. In addition to the main crops, oats, potatoes, barley, clover, rye grass, and turnips, several have mangolds and rape, and a patch of flax is seen on nearly every farm, kept exclusively for domestic use, and for the making of horning nets; frieze and flannel are also made by the tonnery, which, dyed with madder, forms the conspicuous under garment of the females, and with indigo, the large blue cloak. Their taste has, however, refined with their circumstances, and nothing but cloth, though four times the price, will satisfy the ambition of these mountain dames. With respect to education, the Roman Catholic Archbishop of Tuam, Dr. M'HALE, is gaining for himself no enviable notoriety, by his unflinching opposition to the attempts of the society to establish a school under the national board; consequently they have hitherto been unsuccessful, and are now attempting to raise one by the joint subscription of the proprietors and tenants. Who is this intolerant and bigoted priest, who thus not only opposes the wishes and the cravings of a district, containing 2000 souls, but the majority of those of his order, to whom he ought to, at least, give way—the Archbishop of DUBLIN, the Bishop of NORWICH, Rev. DR. WOODWARD, Rev. DR. MARTIN, Rev. DR. BAGOT, and numerous others of the clergy? The author may well say—One is tempted to ask this "dignitary (?) whether it is his *policy* to keep his flock in ignorance? whether he considers they will become better subjects—more amenable to the law—more accessible to moral influences—more likely to advance their temporal interests, or eternal welfare—by being thus abandoned to their own resources, than by participating in the advantages of a well-regulated system of secular education, in which Christianity and Christian principles would, at least,

education, in which Christianity and Christian principles would, at least, be inculcated? Let us contrast this opposition of the archbishop with the poor, single-hearted, hard-working curate of Roundstone, whose periodical visits, through a district comprising 12 miles of coast, are all the present means of education, and here, surrounded by his pupils, in perhaps a barn, or an outhouse, in the depth of winter, distributes the blessing of education, to the best of his time and ability. "We have met this hard-working priest returning to Roundstone," says the author, "a distance of 20 Irish miles, after one of his days of toil, upon the bare backed horse of one of the tenants—for the piece of coarse linen, placed upon his back, can scarce be considered a covering—and he detailed to us the extent and difficulty of his duties. Verily, whatever of *otium cum dignitate*, or literary leisure, the dignitaries of either Church may enjoy, the working Roman Catholic curate in Connemara has certainly no sinecure; out early and home late—exposed to all the inclemencies of weather, in one of the wildest and most unsheltered districts of Ireland—speeding his course of duties across the swampy moor, or rugged mountain, at all hours and in all seasons—hurrying from the sick chamber to the dying bed—a witness to poverty which he cannot relieve, and suffering which he cannot heal—the working priest of Connnaught does truly labour in his most toilsome vocation." In speaking of the inefficiency of agricultural societies in improving the mode of tillage of small farmers, and the cottier peasantry, he observes—"The steward of a wealthy member of an agricultural society, by means of forcing, watching, and liquid manuring, the sunny portion of a favoured field, produces 12 gigantic roots of mangle wurzel, for which his lord, sitting, perhaps, leisurely in his study, is awarded the prize. His health is toasted at the dinner which follows, where the heroes of mangle and turnip reciprocate laudations upon their respective merits, and science crowns their triumphs with an exposition of the several portions of nitrogen, ammonia, gluten, albumen, &c., which they have unconsciously called into action. The praises of green crops and stall-feeding are duly sung; the visitors separate, the prizes are recorded, the speeches figure in print; but in vain do we look for the effects upon the holding of the working farmer—and the very tenants of the victor may be found ignorantly, or obstinately pursuing, the most unprofitable mode of culture. And why? Because the exertions of the proprietor have terminated with his speech, or are, at most, extended to the limits of his own farm. The ordinary Irish farmer is not easily turned away from the beaten track, in which he has followed on boyhood those who have gone before him. The Irish Waste Land Improvement Society have, by coaxing, persuading, threatening, encouraging—or, if necessary, coercing—effected the adoption of a prescribed course of tillage, and otherwise instilled into the minds of their tenants higher notions of social comfort, and this is the most important part of the machinery of the society." We have not room to follow the author throughout the whole of his remarks, but strongly recommend the work to small proprietors, and all who are interested in the welfare of Ireland.

**LATEST CURRENT PRICES OF METALS.**  
LONDON, JANUARY 30, 1843.

LONDON, JANUARY 30, 1845.							
	£	s.	£	s.	£	s.	
IRON—Bars...Wales...ton	0	0	9	0	0	0	
" " London	9	15	10	0	0	0	
Nail rods	10	10	10	15	0	0	
Hoop(Staf.)	11	10	12	0	0	0	
Sheet	0	0	13	0	0	0	
Bars	0	0	11	0	0	0	
Welsh cold-blast foundry pig	0	0	5	10	0	0	
Scotch pig, Clyde	0	0	4	0	0	0	
Rails	0	0	12	0	0	0	
Russian, CCND	0	0	15	0	0	0	
PSL	0	0	16	0	0	0	
" Gourfier	0	0	14	10	0	0	
" Archangel	0	0	13	12	0	0	
Swedish, on the spot	11	10	12	0	0	0	
" Steel, flat	0	0	16	10	0	0	
" " kegs	12	0	15	5	0	0	
COPPER—Tin	0	0	92	0	0	0	
Tough cake	0	0	93	0	0	0	
Best selected	0	0	96	0	0	0	
Discount 24 per cent.		Net cash.		Discount 24 per cent.		Ditto.	
In bars, £14000, 4-5-8-10			Ditto, £14000 per cent.			No cash.	
COPPER—Ordin. sheets, lb.	0	0	0	0	104		
" bottom	0	0	0	0	11		
TIN—Com. blocks, cwt.	0	0	5	0	0		
" bars	0	0	5	1	6		
Refined	0	0	5	5	0		
Straights	0	0	4	8	0		
Bunch	0	0	4	10	0		
TIN PLATES—Ch, IC, &c, ton	1	13	1	14	0		
" IX	1	19	2	0	0		
Coke, IC	3	8	0	1	9		
" IX	1	14	0	1	15		
LEAD—Sheet	0	0	20	5	0		
Pig, refined	0	0	21	10	0		
" common	0	0	19	5	0		
" Spanish, in bl.	17	15	18	0	0		
" American	0	0	17	15	0		
SPELTER—(Cake)	20	0	20	5	0		
ZINC—(Sheet) m export	0	0	30	0	0		
QUICKSILVER	0	0	0	4	6		
REFINED METAL	0	0	0	0	0		

(From our Correspondent.)  
We have nothing whatever of interest to notice in the metal market this week. The

We have nothing whatever of interest to notice in the metal market this week. The expected decline of 3s. per ton in English tin is now effected; with this exception, there is no change since last week's Journal, and very little business has been done.

is no change since last week's Journal, and very little business has been done.

Communicated by Messrs. Whitchurch & Burton, Old Broad-street.

English iron continues firm at last week's prices. Very few transactions have taken place in Scotch pig-iron, the price may now be quoted at £17. 6d. cast iron and 58s. 6d. for plates. Welsh and Staffordshire iron are also firm, but this demand very limited at present. English copper maintains its price, and the trade steady for home use. English lead much better, and good business doing. English tin has fallen 32 per ton, and it is expected next session will have to be submitted to. Foreign tin may also be forthcoming.

About 150 tons of spelter on the spot were sold at 14s.-17s. 6d. per ton. Holders are now asking 20s. For spring shipment there are buyers at 20s. English bar-iron has undergone no alteration. Welsh pig-iron has been in fair demand at quotations. For Scotch pig-iron there are sellers at 18s., at which price business was done to-day. Welsh iron and steel are little higher after present prices. English copper, tin, and lead continue firm, but the transactions are not very heavy. Banca and Straits tin are look-

## Current Prices of Stocks, Shares, & Metals.

**RAILWAY SHARE LIST.**

STOCK EXCHANGE. Saturday morning, Twelve o'clock.		RAILWAYS.	
Bank Stock, 7 per Cent., 266 3 per Cent. Reduced Ann., 95 1/2 3 per Cent. Consols Ann., 94 1/2 3 1/2 per Cent. Ann., 97 1/2 Long Annuities, 10 <i>s</i> India Stock, 10 <i>s</i> per Cent., 255 7 3 per Cent. Consols for Acc., 95 1/2 Exchequer Bills, 1000 <i>s</i> , 27 21 p.m. Belgian Bonds, 4 <i>s</i> per Cents., 98	Dutch, 2 <i>s</i> per Cent., 59 1/2 Brazilian, 5 per Cents., New, 82 Cuba Bonds, 6 per Cent., — Chilian, 6 per Cents., 99 1/2 Colombian, 6 per Cents., — Mexican, 5 per Cents., 304 Spanish, 5 per Cents., 284 Portuguese, 3 per Cents., 59 1/2 Brazilian, 5 per Cents., 113	Aberdeen Arimagh, Coleraine, and Portrush—25 shares Birmingham and Gloucester—100 shares Ditto New issue, 7 <i>s</i> dis., 23/ shares Birmingham and Oxford Junction—20 shares Bristol and Exeter—100 shares Ditto New—33 <i>s</i> shares Bristol and Gloucester—50 <i>s</i> per share Caledonian—50 <i>s</i> per share Ditto Extension—50 shares Cambridge and Lincoln—25 shares Ditto New—25 shares Chesterfield and Bury Chester and Holyhead—50 <i>s</i> shares Clydesdale Junction Cork and Killarney—50 <i>s</i> shares Cork and Waterford—25 <i>s</i> shares Coventry, Nuneaton, Birmingham, and Leicester—25 <i>s</i> shares Cornwall—50 <i>s</i> shares Derby, Uttoxeter, and Stafford Direct Northern—50 <i>s</i> shares Direct Manchester (Remington's)—20 <i>s</i> shares Ditto East Lancashire—20 <i>s</i> shares Dublin and Belfast Junction—50 <i>s</i> shares Dublin, Belfast, and Coleraine—50 <i>s</i> shares Dublin and Galway—50 <i>s</i> shares Dundalk and Enniskillen—50 <i>s</i> shares Eastern Counties—25 shares East Dereham and Norwich East Lincolnshire Edinburgh and Glasgow—50 <i>s</i> shares Edinburgh and Northern—23 shares Edinburgh and Perth Exeter, Yeovil, and Dorchester—50 <i>s</i> shares Gloucester, Abergavenny, and Central Wales—25 <i>s</i> shares Gooch and Dunster—20 <i>s</i> shares Grand Junction—100 <i>s</i> shares Ditto 1 <i>s</i> shares—50 <i>s</i> shares Ditto 1 <i>s</i> shares—25 <i>s</i> shares Ditto 4 <i>s</i> shares, Liverpool to Manchester Grand Union (Nottingham and Lynn) Great Grimsby and Sheffield—50 <i>s</i> shares Great Southern and Western (Ireland)—50 <i>s</i> shares Ditto Extension—50 <i>s</i> shares Great North of England—100 <i>s</i> shares Ditto New—40 <i>s</i> shares Great North of Scotland Great Western—100 <i>s</i> shares Ditto 1 <i>s</i> shares—50 <i>s</i> shares Ditto Fifths—20 <i>s</i> shares Guildford, Farnham, and Portsmouth—50 <i>s</i> shares Harrow—20 <i>s</i> shares Hull and Gainsborough—25 <i>s</i> shares Hull and Selby—50 <i>s</i> shares Inverness and Elgin—20 <i>s</i> shares Irish North Midland Kendal and Windermere—25 <i>s</i> shares Lancaster and Carlisle—50 <i>s</i> shares Leeds and Bradford—50 <i>s</i> shares Leeds and West Riding Junction Leicester and Birmingham—20 <i>s</i> shares Leicester and Bedford—20 <i>s</i> shares Leicester and Tamworth—20 <i>s</i> shares Liverpool and Leeds Direct—50 <i>s</i> shares Liverpool, Manchester, and Newcastle Junction London and Birmingham London and Birmingham Extension—25 <i>s</i> shares London and Blackwall London and Brighton—50 <i>s</i> shares London and Croydon London and Greenwich London and South Western London and York—50 <i>s</i> shares London and Windsor—25 <i>s</i> shares London, Salisbury, and Yeovil—50 <i>s</i> shares Londonberry and Coleraine—50 <i>s</i> shares Londonberry and Enniskillen—50 <i>s</i> shares Lynn and Ely—25 <i>s</i> shares Lynn and Dereham—25 <i>s</i> shares Manchester and Leeds—100 <i>s</i> shares Manchester and Birmingham—40 <i>s</i> shares Ditto 1 <i>s</i> shares—10 <i>s</i> shares Manchester, Buxton, and Matlock—20 <i>s</i> shares Manchester and Southampton Midland—Stock Ditto Birmingham and Derby Midland Great Western (Irish)—50 <i>s</i> shares Ditto Extension to Sligo Newcastle and Berwick—25 <i>s</i> shares Newcastle and Carlisle—100 <i>s</i> shares Newcastle and Darlington Junction—25 <i>s</i> shares Ditto New (Bradfing) —25 <i>s</i> shares Newport and Abergavenny Newry and Enniskillen—50 <i>s</i> shares Newark, Sheffield, and Boston—25 <i>s</i> shares North British—25 <i>s</i> shares North Devon Northern and Eastern—50 <i>s</i> shares North Kent and Direct Dover—50 <i>s</i> shares North Staffordshire—20 <i>s</i> shares North Wales—25 <i>s</i> shares Norwich and Brandon—20 <i>s</i> shares Northampton, Banbury, and Cheltenham Nottingham and Boston—20 <i>s</i> shares Nottingham, Erewash Valley, and Manchester Oxford, Worcester, and Wolverhampton Oxford, Gospert, Portsmouth, and Southampton—20 <i>s</i> shares Portsmouth Direct—50 <i>s</i> shares Preston and Wyre—50 <i>s</i> shares Richmond—20 <i>s</i> shares Rugby and Huntington—20 <i>s</i> shares Scottish Central—25 <i>s</i> shares Scottish Midland—25 <i>s</i> shares Sheffield and Lincoln—35 <i>s</i> shares Sheffield and Manchester—100 <i>s</i> shares Shrewsbury, Wolverhampton, Dudley, & Birr.—50 <i>s</i> shares Shrewsbury, Hereford, and North Wales Shrewsbury and Birmingham Somersetshire Midland South Devon—50 <i>s</i> shares South Eastern and Dover South Midland—90 <i>s</i> shares South Wales—50 <i>s</i> shares Staffordshire and Shropshire—50 <i>s</i> shares Staines and Richmond—20 <i>s</i> shares Trent Valley—20 <i>s</i> shares Trent Valley and Holyhead Junction—20 <i>s</i> shares Worcester and Cheltenham—20 <i>s</i> shares Watford and Kilnenny—20 <i>s</i> shares Welsh Midland—20 <i>s</i> shares Wexford and Carlow Wiltz, Somerset, and Weymouth—50 <i>s</i> shares Worcester, Shrewsbury, and Crewe Union Yarmouth and Norwich—20 <i>s</i> shares York and Carlisle York and North Midland—50 <i>s</i> shares Ditto Scarborough Branch—25 <i>s</i> shares Ditto Selby—50 <i>s</i> shares Ditto Extension—25 <i>s</i> shares	Paid Closing pr. last week. Lossing pr. last week.
THE SHARE MARKET.		FOREIGN RAILWAYS.	
MINES.—Little or nothing has been doing in mining affairs during the past week; a few sales have been effected, but, generally speaking, at lower prices than last quoted. For general information we refer to our usual list.		Boulogne and Amiens—20 shares Bordeaux and Toulouse and Cete (Mackenzie)—20 <i>s</i> shares Bordeaux, Toulouse, and Cete (Esquale)—20 <i>s</i> shares Central of Spain—20 shares Denarre Valley—20 shares Dijon and Mulhouse—20 shares Dutch Rhine-House—20 <i>s</i> shares East Indian Great Northern of France (constituted) Great Paris and Lyons—20 <i>s</i> shares Jamaica and South Midland Junction—20 <i>s</i> shares Jameson North Midland—1 <i>s</i> Jersey—1 <i>s</i> Lorraine and Jamapie—20 <i>s</i> shares Lyons and Avignon—20 <i>s</i> shares Luxembourg—20 <i>s</i> shares Namur and Liege—20 <i>s</i> shares Orleans and Vierzon—20 <i>s</i> shares Orleans and Bordeaux—20 <i>s</i> shares Over Yssel—20 <i>s</i> 16 <i>s</i> 8 <i>s</i> shares Paris and Lyons (Laflite)—20 <i>s</i> shares Paris and Lyons (Gambone's)—20 <i>s</i> shares Paris and Lyons (Calon's)—20 <i>s</i> shares Paris and Strasbourg (Gambone's)—20 <i>s</i> shares Ditto (Compte de l'Est) Ditto (Aymard's) Paris and St. Quentin—20 per share Paris and Orleans—20 <i>s</i> shares Paris and Rouen—20 <i>s</i> shares Royal North of Spain—20 <i>s</i> shares Rouen and Havre—20 <i>s</i> shares Sambre and Meuse—20 <i>s</i> shares Strasburg and Basle—14 <i>s</i> shares Tours and Nantes (Mackenzie)—20 <i>s</i> shares Ditto (Leicht's)—20 <i>s</i> per share Verona and Ancona (Italian and Austrian) West Flanders	Paid Closing pr. last week. Lossing pr. last week.
RAILWAYS.—The share market, during the week, has been extremely dull as the brokers generally have shown a reluctance to enter into large transactions; prices of well-established lines have, however, been fully maintained. The settlement of the account in shares took place on Thursday, and the settling day, which was yesterday, passed off without a default being declared. Money is tight out of doors, and the discount houses in the city still pursue a stringent course of business; but the Bank of England continues to discount first-class bills at 3 <i>s</i> to 5 per cent. This inaction is produced by the fears entertained for the course that may be pursued by the select committee, to whom Parliament appears to have delegated its powers of dealing with the rights of parties interested in the mass of new projects. Until the report of that tribunal is made public, and disposed of, the share market must remain in a very unsettled position. The new board is not, perhaps, so objectionable in its constitution as the defunct railway department of the Board of Trade. Parliament has now devolved its functions upon a board or committee, composed of its own members, while the Board of Trade committee was formed out of less weighty materials. The status of the new board is, therefore, calculated to give greater confidence, and its recommendations will be received with more consideration than awaited the opinions of the Board of Trade committee. But there are objections, which were urged with great force against the latter, from which the new tribunal is not exempt. The decisions of the new tribunal, like those of its predecessor, will be made in secret. Strangers, we presume, will be excluded, and neither agents nor counsel permitted to be present, to lead evidence or to examine witnesses. From the view taken of the railway question by Sir Robert Peel, when moving for the committee, it is inferred that a limit will be put to the amount of capital to be expended within certain fixed periods. This principle is fully approved of by all well-informed disinterested persons; but it is reasonably enough concluded, that the completion of the main trunk lines will, in that event, have preference in point of time. The scrip of nearly all the others, not answering that description, has been more or less depressed. Parliament will, however, act decidedly wrong, if it deviates from the principle, although there will be a good deal of difficulty in carrying it into practice in a manner satisfactory to all interests concerned. It appears that, in 1844, there were 48 railway bills, and, in 1845, 118 passed the House, of which number the first required the outlay of a capital of 14,780,000 <i>l</i> ., and the last of 50,000,000 <i>l</i> . It was calculated that, if required three years for the completion of a railway, if, therefore, there should have been sanctioned, by legal enactment, the levy of a sum of 70,000,000 <i>l</i> . for railways, it followed that, in 1846, 23,500,000 <i>l</i> . would have to be applied to them. The following are the prices of some of the leading lines:—London and Birmingham stock, 22 <i>s</i> to 6 <i>s</i> ; South-Western shares, 77 to 79; Great North of England, 21 <i>s</i> to 17 <i>s</i> ; Midlands, 15 <i>s</i> to 4 <i>s</i> ; Great Western, 78 to 82; Paris and Rouen, 38 <i>s</i> to 9 <i>s</i> ; Rouen and Havre, 8 <i>s</i> to 9 <i>s</i> ; Paris and Lyons, 4 <i>s</i> to 5 <i>s</i> . In addition to the stoppage of the Leeds and West Riding Bank, which held a large amount of railway deposits, which it had received as the agents of the Sheffield and Retford Bank, we are sorry to notice that the latter has been announced as having stopped payment this week; it is believed that both of these banks will ultimately wind up their affairs, with no eventual loss to the public, or very little, if any, to the shareholders.			
RAILWAY MEETINGS.—On Saturday last, a meeting of the proprietors of the Great North and South Wales and Worcester Railway was held at the Guildhall Tavern, in conformity with a resolution agreed to at a former meeting, in consequence of the directors having refused to accede to the request of a deputation appointed by the shareholders to inspect a balance-sheet of the affairs of the company up to the present time. At the meeting at which the deputation was formed, a resolution was agreed to, not to pay the additional deposit of 1 <i>s</i> per share, demanded by the directors. Mr. Josiah Bates was called to the chair, and, after considerable discussion, resolutions, empowering the meeting to take legal measures to stop further expenditure, were passed unanimously.—On Tuesday, a numerous meeting of the shareholders of the Shrewsbury and Birmingham Railway was held at Manchester, to receive the report of a deputation appointed to proceed to London, and receive from the committee of management some explanation respecting the recent amalgamation with the Dudley, Madeley, Boscley, and Iron Bridge Railway Company. The arrangement was unanimously agreed to.—The meetings of the Great Welsh Central, the Chepstow and Forest of Dean and Southampton Companies, Manchester and Oxford Junction, will be found reported in our columns.			
RAILWAY PROGRESS.—It is rumoured that Irish lines are to have a preference this session; that Parliament will not encourage many English lines beyond the remanents from last session, with the exception of small local branches and interliner links. The Bradford Board of Surveyors have come to the resolution to oppose all the railways affecting the highways of the township, on the ground that sufficient accommodation is not provided for the public; the plan and height of the viaducts not being commensurate with the requirements of the town. The Hawick branch of the North British, 10 miles in length, is about to be placed under contract.—Last week, the directors and engineers of the Manchester, South Junction, and Alfreton line, broke the first ground in Castlefield.—The Berwickshire Central Junction have resolved on postponing their application to Parliament until a future session.—A special general meeting of the North British Railway Company is to take place on the 9th of February next.—The number of men employed on the Caledonian Railway, in the neighbourhood of Larkby, is about 600; consisting of English, Scotch, and Irish—the latter, however, predominated.—The contractors of the Lincoln, Nottingham, and Newark, are making rapid progress, and it is expected that the works will be completed by the ensuing summer.—The shafts of the Dudley tunnel, on the Oxford, Worcester, and Wolverhampton line, have been sunk.—The total number of petitions for bills presented up to Wednesday, and referred to the select committee, amount to 103. They consist principally of applications for branches and extensions in connection with established lines, and but few comparatively for new ones; but is perfectly fair to infer that the pecuniary deposits to this extent have been effected. We understand, that Mr. Hudson, M.P., has no fewer than 58 applications for new railway acts, or for the extension of railways, to be made during the present session of Parliament. Last year, the hon. gentleman applied for 17 railway acts, and succeeded in obtaining the principal part of them.			
The railway traffic is rapidly increasing: the last week, on nearly 1800 miles of railway, it was 114,282 <i>l</i> .—of which 55,895 <i>l</i> . was for the conveyance of passengers only; 29,754 <i>l</i> . for the carriage of goods; and a remainder of 28,663 <i>l</i> . for passengers and goods together—an increase over the corresponding week last year of 16,708 <i>l</i> .			
MESSRS. LAMOND'S SALES.—TUESDAY.—Direct Northern (2 <i>s</i> . 10 <i>s</i> . pd.), 2 <i>s</i> ; Great Western of Bengal (5 <i>s</i> ., 14 <i>s</i> .), 14 <i>s</i> ; Leicester and Bedford (1 <i>s</i> . 28 <i>s</i> .), 1 <i>s</i> . 10 <i>s</i> .; London and Manchester—Blastrick's (5 <i>s</i> ., 5 <i>s</i> .), 37 <i>s</i> . 16 <i>s</i> .; Luton, Belfast, and Ballymena (2 <i>s</i> ., 28 <i>s</i> .), 1 <i>s</i> . 10 <i>s</i> .; Norwich and Brandon, new (3 <i>s</i> ., 6 <i>s</i> ., 5 <i>s</i> .)—North Staffordshire, Churnet, and Potteries (2 <i>s</i> ., 14 <i>s</i> ., 14 <i>s</i> .), 1 <i>s</i> . 2 <i>s</i> .; London, Salisbury, and Yeovil (2 <i>s</i> . 1 <i>s</i> .), 2 <i>s</i> ; Tean and Dove Valley (1 <i>s</i> . 7 <i>s</i> . 6 <i>s</i> .), 1 <i>s</i> . 2 <i>s</i> . 6 <i>s</i> ; East Indian (5 <i>s</i> ., 1 <i>s</i> . 7 <i>s</i> . 6 <i>s</i> .), 1 <i>s</i> . 7 <i>s</i> . 6 <i>s</i> ; Norfolk Extension (2 <i>s</i> .), 1 <i>s</i> . 15 <i>s</i> .; Great Grimsby, Louth, and Horncastle (2 <i>s</i> . 2 <i>s</i> .), 1 <i>s</i> . 13 <i>s</i> . 6 <i>s</i> ; Goole and Doncaster (4 <i>s</i> ., 5 <i>s</i> ., 5 <i>s</i> .)—Leicester and Birmingham (1 <i>s</i> . 2 <i>s</i> .), 1 <i>s</i> . 2 <i>s</i> .; Friday—Calculta and St. George's (7 <i>s</i> .), 10 <i>s</i> ; Chepstow and Forest of Dean (2 <i>s</i> . 2 <i>s</i> .), 4 <i>s</i> ; Shropshire Union Railway and Canal (2 <i>s</i> . 2 <i>s</i> .), 2 <i>s</i> . 2 <i>s</i> . 6 <i>s</i> ; Shrewsbury and Hereford (2 <i>s</i> . 2 <i>s</i> .), 4 <i>s</i> ; Lincoln, Haven, Walnef, and Boston (2 <i>s</i> . 12 <i>s</i> . 6 <i>s</i> .), 1 <i>s</i> . 10 <i>s</i> ; Tean and Dove Valley (1 <i>s</i> . 7 <i>s</i> . 6 <i>s</i> .), 1 <i>s</i> . 2 <i>s</i> . 6 <i>s</i> ; North British, Carlisle, Extension (1 <i>s</i> . 5 <i>s</i> .), 2 <i>s</i> . 1 <i>s</i> . 6 <i>s</i> ; Jumuny Iron Company (3 <i>s</i> ., 3 <i>s</i> ).			
SOUTHAMPTON, MANCHESTER, AND OXFORD JUNCTION RAILWAY.—A meeting of the shareholders in this company was held on Tuesday, the 27th inst., at the Hall of Commerce. The meeting having been convened by Mr. Parsons, the late solicitor, who has figured in our law courts (or those deemed worthy) of late, having been discharged from his position, as connected with a company. Nearly an hour elapsed before the chair was taken. Mr. Parsons spoke at considerable length, attacking the board of management, and he was replied to by Mr. G. F. MUNZ and Mr. SPOONER, the members for Birmingham, in a manner which at once destroyed the position assumed by that gentleman, who, it appeared, had formerly been the solicitor of the company, and was, in fact, the projector; but who had been dismissed from his office. It is unnecessary to enter into the question raised, or the personalities which the parties indulged, suffice it, that the hon. chairman of the company, and the directors by whom he was accompanied, at once explained their conduct, and expressed their readiness to call a meeting, if properly convened. The meeting was not of that importance which we could wish to have seen, while much credit is due to Mr. Munz and Mr. Spooner, for having attended as we think, from the exposed which took place, much discredit must fall on the party with whom the meeting emanated.			
GREAT MEDITERRANEAN AND ADRIATIC JUNCTION RAILWAY.—A meeting of the above company, having been convened by public advertisement to be held at the George and Vulture Tavern yesterday, at three o'clock, our reporter attended; when, from the paucity of attendance of shareholders—there being four present—after waiting upwards of half-an-hour, the solicitor suggested it would be better to adjourn the meeting to the 13th February, at three o'clock precisely, sending circulars to the shareholders, in the meantime, apprising them of the arrangement. A motion to that effect having been carried, the meeting separated.			

# ATMOSPHERIC RAILWAY GAZETTE.

## PRICES OF MINING SHARES.

BRITISH MINES.			BRITISH MINES—continued.				
Shares.	Company.	Paid.	Shares.	Company.	Paid.		
233	Andrew and Nangies	24	65	120	Trelawney	5	70
4000	Bedford	24	54	128	Trewavas	—	164
100	Botallack	175	350	96	Treasvean	10	300
10000	British Iron, New, regis.	10	22	128	Tokenbury	119	84
—	Ditto ditto, scrip.	10	244	256	Trenow Consols	—	170
8000	Blaenavon	50	402	120	Trevikey and Barrer	61	180
120	Brewer	—	30	5000	Treleigh Consols	6	3
128	Budnick Consols	—	30	9600	Tamar Consols	3	54
100	Bwch Ewmerlin	20	200	6000	Tincoff	7	15
100	Barristown	22	250	128	Trewellard	12	254
320	Birch Tor Tin Mine	103	12	1024	Trelawney Consols	14	2
5000	Cou. Trelawny Mining Ass.	3	1	256	Ting Tang	52	52
128	Cosheen	20	200	4000	United Hills	5	41
114	Charlestown	—	240	100	United Mines	300	900
3200	Cornubian Lead Co.	3	14	6000	Wicklow Copper	5	17
128	Comfort	—	25	512	West Fowey Consols	40	35
256	Cook's Kitchen	—	8	384	Wheat Franco	22	50
1000	Cors Hira	15	100	127	Wheat Virgin	—	20
1000	Collington	18	20	256	West Cardigan	20	380
256	Cardon Wh. Hooper	9	8	345	West Welsh Jewell	11	3
256	Cardon Consols	45	824	—	West Kekewich Consols	—	32
256	Cardon Copper Mine	44	6	120	West Trelawney	5	40
256	Cardon Mines	44	36	128	West Rose	40	29
256	Cardon United	19	20	256	West Wheal Tolgas	214	214
128	Croog Braws	120	80	1000	Wheat Harriet	4	2
1900	Comburmartin	54	8	128	Wheat Penrose	—	5
240	Crockford Moor	8	50	128	Wheat Providence	4	—
128	Conduits	16	22	68	Wheat Clifford	—	450
1000	Copper Bottom	1	5	256	Wheat Albert	10	12
1024	Devon & Courtney Con.	1	3	128	West Bassett	10	50
186	Dolcoath	—	80	128	Wheat Acland	13	14
1000	Dhuadore	2	5	256	Wheat Sisters	234	85
10000	Durham County Coal.	45	9	99	Wheat Seton	130	600
128	East Pool	5	40	200	West Seton	—	38
94	East Wheal Croft	—	450	128	Wheat Henry	—	104
128	East Wheal Rose	50	1500	169	Wheat Hope (Zennoy)	23	25
—	East Wheal Albert	—	5	256	Wheat Hope	7	41
256	East Wheal Alfred	2	10	4000	Wheat Martha Consols.	3	3
9000	East Tamar Consols	—	34	130	Wheat Trelawny	15	275
123	East Wheal Seton	24	16	256	Wh. Mary Ann	5	55
512	Fowey Consols	—	80	256	Wheat Norris	9	124
244	Gambler & St. Aubyn	—	46	256	Wheat Trevemra	4	4
100	Great Consols	1000	400	256	Wheat Trevishan	—	10
100	Godolphi	—	35	107	Wheat Trevishan	10	5
256	Gomenai	18	130	128	Wheat Catherine	52	10
2000	Galvanised Iron Co.	10	10	256	West Providence	—	74
100	Grogwinion	5	20	256	Wheat Robbins	13	5
1000	Gunnels Lake	14	3	256	West Wheal Treasury	12	16
128	Gover	23	200	256	West Wheal Shepherd	2	5
256	Great Mitchel Consols	—	4	128	Wheat Steer	214	50
1000	Hibernian	124	1	128	Wheat Reeth	1	60
100	Hobnabush	14	30	256	Wheat Gill	174	16
128	Hallenbeagle	—	50	128	West Cargill	2	15
100	Hanson	5	1	1024	Wh. Mary (Calstock)	2	3
800	Hawknor	3	6	1024	Wheat Mary	1	14
1000	Harrovbarrow Old Mine	24	24	256	Wheat Concord	14	16
256	Herodsoot	9	12	128	Wheat Venland	24	5
6300	Heighton Down Con.	1	2	256	West Wh. Friendship	2	12
256	Ivy Tor	—	—	128	Wheat Prospect	4	9
1200	Kirkendbrightshire	14	5	256	Wheat Victoria	2	6
200	Larkholes	1	3	240	Westerlake	3	3
160	Levant	—	150	1024	Wh. Maria	1	550
100	Lewis	5	6	256	Wheat Fortescue	14	20
2048	Lam'rsho Wh. Maria	54	64	512	Wheat Sarah	24	4
2000	Mining Co. of Ireland	7	124	256	Wheat Cleveland	24	5
2800	Mark Valley	10	44	256	Wheat Mexia	3	6
200	Manterer Consols	104	10	256	Wheat Boscombe	34	9
70	North Roskear	40	600	265	Wheat Kendall	114	15
200	North Hobnabush	—	15	128	Wheat Trannack	19	25
100	North United	41	45	256	Wheat Williams	—	25
256	North Wheal Rose	24	50	1024	Wheat Walter	2	45
100	North Trelawny	22	10	256	Wheat Marc Consols.	10	13
15000	Northern Coal Co.	11	40	2560	West Wh. Mitchell	—	30
128	North Wh. Providence	24	10	128	Wheat Peltard	92	30
128	North Fowey Consols.	10	20	128	Wheat Peltard	—	30
1000	Nant-Ar-Nelle	2	2	128	Wheat Peltard	—	30
5000	Alten Mining Company	144	1	FOREIGN MINES.			
600	Asturian Mining Co.	55	31	15000	Asturian Mining Co.	5	31
128	Par Consols.	—	500	10000	Anglo-Mexican Co.	100	3
256	Penllyn Moor	15	5	3374	Ditto Subscription	25	4
128	Pen-y-Cefn Mine	50	55	2000	Bolano	150	4
100	Pennifly	30	65	12000	Ditto Scrip.	15	44
512	Plymouth Wh. Yeoland	14	34	10000	Brazilian Imperial	21	43
1000	Rhymney Iron	50	34	12000	Branca (Bras.) Co.	68	—
256	Rose Consols	10	7	12000	Cobre Copper Co.	40	19
1000	Rosewell Hill	1	24	8500	Colombian Co. regis.	55	1
1024	Roscarrock	24	24	5000	Copado Mining Co.	14	18
2500	Silver Valley	2	2	10000	General Mining Ass'.	20	14
800	South Town	10	14	2000	General Mining Ass'.	20	14
1000	Stray Park	43	19	5051	Mexican Company	59	6
128	South Wheal Bassett	—	220	12000	Mocambas & Co.	25	44
128	South Consol	5	450	29320	(R) del Monte, regis.	284	34
256	St. Austell Consols	6	35	Ditto Red Debentures	—	19	
256	South Wheal Rose	2	3	Ditto Black ditto	—	17	
128	South Yeoland	154	284	Ditto Loan Notes	—	150	
256	South St. George	92	12	7000	Royal Santiago	10	12
256	South Trelawny	43	14	2000	Pachuca Mines	3	34
256	Sourton Consols	—	5	11000	St. John del Rey	15	5
—	South Wh. Maria	—	5	43174	United Mexican	284	44

## RAILWAY TRAFFIC RETURNS.

Name of Railway.	Length.	Present ac-tual cost.	Last Div.	Traffic Returns.
Arbroath and Forfar,	15	£140,782	24 p.c.	£177
Chester and Birkenhead	520,640	24	505	2 2 421
Dublin and Drogheda	631,258	4	593	12 82 513
Dundee and Arbroath	17	153,598	4	225 1 64 219
Durham and Sunderland	19	302,118	2	572 6 0 651
E. Counties & N. & E. & S. & W.	124	4,090,326	5	6329 12 0 3945
Edinburgh and Glasgow	46	1,686,226	6	2257 16 4 1933
Glasgow, Paisley, and Ayr	51	1,104,773	6	1870 18 3 1367
Grand Junction Company *	23	806,134	2	720 5 1 713
Gravesend and Rochester	6	85,003	5	104 15 2 7481
Great North of England	45	1,296,196	6	1591
Great Western	220	7,717,043	8	16021 6 8 13945

subscriptions which annually swell its capital, clearly shows the estimation in which it is held by the wealthy and the great. At the last annual dinner nearly 1000<sup>l.</sup> was subscribed in aid of the benevolent fund. The East and West India Dock Company has also behaved with the greatest liberality, not only by subscribing to the benevolent fund, but by using every means to encourage their clerks to become members of the association; and this high degree of estimation is not confined to London, but to so great an extent are its principles approved of in the provinces, that the number of its country agents has been doubled in the past year. In fact, the association has succeeded to an unprecedented extent—it has won "golden opinions from all sorts of men"—and proudly gratifying must the meeting on Tuesday have been to its founders, in the foremost ranks of whom was GEORGE THOMAS, Esq., the respected chairman, to whose persevering and untiring exertions, with his extensive mercantile connections, and indefatigable colleagues, its present success must be attributed. And may it still prosper! An institution like this, founded for the purpose of carrying balm to the wounded spirit, to cheer the sick bed, soften the dying pillow, and, finally, to administer to the temporal wants of the bereav'd, is well worthy the support of all.

The rapid progress that iron steam-ship building is making in this country, not only for the royal navy, but, more particularly, the mercantile marine, is giving a great impetus to the speculative energies of the ironmasters, whose furnaces are in full blast, and all those connected in this extensive and important branch of mining industry of the United Kingdom. Notwithstanding the numerous railway lines which are now in full traffic, and the hundreds more that will be established within a few years, England has sufficient iron ore and carbonic fuel, to meet all the exigencies for centuries and centuries to come. The adoption of iron for shipbuilding, in preference to wood, there is little doubt, will be general before another quarter of a century, not only for its durability, but buoyancy, compared with the latter. The value of iron, as a material for shipbuilding, has been known for upwards of 100 years, and even the ancients looked upon it as the most useful metal to man. The first iron vessels, or boats, for the purposes of navigation, were built for the canals of this country, and that so far back as the year 1780; but it was only on a very limited scale. The construction of steam-vessels gave the idea, that iron might be substituted with advantage for wood, and, in 1820, Mr. Manby took out a patent in France for iron steam-boats, when he, and the present Admiral Sir CHARLES NAPIER, formed a society, and built a vessel at Horsley as a model, and, in the early part of 1822, that experienced officer took the command of the *Aaron Manby* (so named after the projector), and navigated her from London direct to Havre-de-Grace, and so up the river Seine to Paris. This was the first iron steamer that ever crossed the British Channel, or, in fact, put to sea, which excited the greatest public curiosity at the time among the Parisians, being the first vessel that had come direct from London to the French capital, and that in iron. Another iron steamer was built in 1824, for the navigation of the Shannon, and was put together at Liverpool, crossed the channel to her destination, Lough Derg, which gave rise to this extensive and spirited company now navigating that splendid river. The building of iron vessels, after this success, gradually began to increase, and numerous steamers, and even sailing vessels, of large tonnage, for distant sea voyages, were constructed. Since that period, the progress of iron shipbuilding has made a most wonderful and rapid advance in the annals of the naval history of this country. We not only have now some of the most powerful iron frigates and war steamers in the royal navy, the admiration of all foreign countries; but a commercial fleet of iron steamers, the finest in the world, which have excited the jealousy and emulation of France, and the whole of Europe.

The progress making in this new art of shipbuilding is giving an unequalled impetus to iron mining enterprise and naval improvements. The use of this metal is not confined solely to steamers, but several sailing-ships are in course of construction, in which small auxiliary steam-power is to be employed; and there is very little doubt that iron will be generally adopted in the construction of merchant vessels for long voyages, in conjunction with the screw propeller, so as to enable them to be worked in addition to sails. In the building yards of Liverpool, so much activity never prevailed as at present; and it is with much difficulty a sufficient number of workmen can be obtained, to complete the contracts entered into. Besides the former splendid vessels which have been launched from the stocks at Liverpool, two fine iron ships this week, constructed by Messrs. VERNON and Co., from the plans of Mr GRANTHAM. The first is the *Windsor*, of 800 tons, which is built for the City of Dublin Company; and the *Ajax*, of the same dimensions, for the Cork Company. The same firm is building a large steamer, of about 1300 tons, for the Peninsular and Oriental Steam Navigation Company, who already have the *Bentinch* and the *Hindostan*, iron steamers of 1800 tons each, running from Calcutta to Suez, besides an order for two other steamers of 700 tons for the Cork Company, and one of 300 tons for Fleetwood. Five iron vessels are now building at Messrs. HODGSON and Co.'s works, at the same port; that nearest completion is 250 tons, to be worked by a screw, and is intended for Buenos Ayres; the *Antelope*, of 600 tons, as a packet between Liverpool and the Brazils; a large vessel for the New York trade, of 1500 tons, to be heavily rigged, and with four masts—the two latter to be propelled by the screw, on Mr. GRANTHAM's patent direct principle; also, one for Bombay, of 300 tons; and the fifth for the Woodside Ferry. Four vessels have been ordered of Mr. CATO, from the plans of Mr. GRANTHAM—one of 650 tons for the City of Dublin Company, to be worked by paddle-wheels; two for the same company, of 300 tons, rigged as three-masted schooners. Messrs. LAIRD, who built the *Birkenhead* iron steam-frigate, of 1400 tons, recently launched, has five steamers in the course of construction. Several others are on order, to be completed during the present year. Among the many improvements which have been made in iron shipbuilding, is the iron water-tight bulkheads, by C. W. WILLIAMS, Esq., of Liverpool, and which are being generally adopted in the construction of steam-ships, as being one of the safest systems hitherto invented for the preservation of life from shipwreck. Mr. JOHN BARBER, registrar for the registration and regulation of the coal whippers of the port of London, has long devoted his attention to the discovery of some means of stopping leakages, which might be caused to iron steam-ships of war, by the cannon-shot of the enemy, has, it appears, succeeded in producing a mastick of India-rubber, cork, and other elastic substances, which he has, no doubt, will stop any hole that might be made in a vessel by a ball, until she could be brought back to be docked, and which is now under the consideration of the Board of Admiralty.

We have entered rather fully on this subject, because the building of iron steamers is attracting the serious attention of the French Government, and the Minister of Marine has repeatedly strongly urged the necessity of admitting English wrought and cast-iron into the different dockyards and ports of France, when for shipbuilding free of duty, if they wish to compete, in a measure, with the rapid advancement making in naval construction in this country, and, no doubt, it will pass the Chambers this session, as the majority are in favour of the repeal of the duty on iron, it being fully established France cannot supply her demands. The autocrat NICHOLAS, of Russia, is also deeming his ambitious genius, to the revolution that the adoption of iron, for naval purposes, is likely to create all over the globe, by having several fine iron steam-frigates immediately constructed in this country.

In the few last consecutive numbers of this Journal we have presented our readers with a series of tables, and other statistical documents, exhibiting the progress and condition of mining interests throughout the world. It has, of course, been exceedingly difficult to procure, as to foreign fields of mining operations, that fulness of information which would be, in every sense, desirable; but wherever access could be had to original sources of information, we have made it our business to seek it, for the satisfaction and government of our mining readers. With distant theatres of mining labour, however, we are all happily less interested, than with that lying within the sea-wall of these islands; and, though we make in our inquiries the tour of the world, asking questions in the two Americas, in Peru, Mexico, and Brazil, in Spain, Algeria, and the Indies, yet we come back upon the mineral wealth of the insular group, in the penetralia of which we write, and find it in every sense outweighing, in its value to us as Englishmen, all other branches of this wide extended interest. Every where, we think we may safely affirm it, the star of mining enterprise is in the ascending arch of our hemisphere. It is, than heretofore, a larger object in the eye of the world. It absorbs the labour, and reproduces the capital, of a greater number than at any other period in the cycle of its history. This is attributable, in all probability, to the greater accumulation of wealth in all commercial states, to the necessity of finding employment for the annually increasing surplus of their capital, and also, with respect to all the regions in which either the authority or the example of Great Britain is prevalent, to the greater liberality of our commercial legislation. Right or wrong as we may be, in assigning the true causes of the welcome change, there it is, and as clearly marked as the meridian line at Greenwich. Upon that fact, we rest our confident hopes in the fruitfulness of the pregnant future. The vast magazines of iron and coal, which form so rich a natural endowment of these kingdoms, are nearly enough of themselves to place the nation at the head of civilised Europe—to give her rightly used, the first place in commerce and in arms. It is not, however, natural gifts, *in esse*, that at any time make the true wealth of nations: they must be wrought out, and fully elaborated, by the wealth of the capitalist, and the industry of the artisan; and in this application of the governing intellect, and of the labouring arm, whether it be that of an individual or of a nation, virtue is strengthened and power established. This occupation of superintending skill, and of laborious activity, is the inheritance of our countrymen from the Tyne to the Longships. Nor, in a social point of view, is toil in any measure an evil; but to lower its remunerative rights, to screw down the wages of labour as closely as possible to the famine point, to impose hopeless poverty on those who furnish the thews and sinews by which a great national object is wrought out, is not symptomatic of justice—it is worse, it is even contra-symptomatic of civilisation. It may be taken as settled fact, that the condition and comfort of the labouring classes throughout England must be raised. A short time committee is in existence, and the next economical move will probably be, a commission to inquire into the wages of labour, and report to Parliament thereupon. In such an inquiry, the masses occupied in mining labour would attract the early and particular attention of the commissioners; and it would be infinitely better, that shareholders and adventurers, by a spontaneous and unforced arrangement of their own, should add to the remuneration, and ameliorate the status, of their labourers, than that their deep places should be searched by the trimmed lamp and flexible fingers of a statute, or their arrangements interfered with by the sudden irruption of a resolution of the House of Commons.

We have shown, in preceding Numbers of this Journal, the results of mining operations in England generally, and having done so, we would point, with some particularity, to the county of Cornwall. Since the ships of Tyre and Phenicia first ventured seaward, beyond the pillars of HERCULES, this county has been in high reputation, for the purity and abundance of the metals which it has furnished for the promotion and adornment of the arts of life; to this day it maintains its ancient renown. The quantity of ores raised and sold, during the last year, exceeds the known produce of any preceding year. Twenty centuries have not sensibly diminished the depth, or narrowed the breadth, of the metallic deposits of this district. Considering its high antiquity, and present opulence as a mining theatre, it would, and should, in all reason and probability, present a model of mining skill, of mining economy, as well as of the contentment and competency in the condition of its industrial population. But, is it so? Could a question, levelled at either of these elements, obtain an affirmative response? If so, we shall confidently anticipate a still greater effusion of mining prosperity, and hope to see the social happiness deepened of a community, whose well doing it is difficult more fully, or more fervently, to desire, than we desire it.

**ACCIDENT AT RISCA COLLERY.**—Having instituted inquiries in the locality of this fearful accident, and to which so much attention is directed at the present moment—while the result of the investigation at the coroner's inquest cannot be known until after the publication of the present Number—we readily avail ourselves of the information so acquired, without in any way expressing an opinion, or anticipating the decision, at which the jury may arrive. The colliery, which has been worked extensively—200 to 250 men being employed—is known as the Risca Colliery, situate about seven miles from Newport, the produce being principally shipped from thence, yielding about 100,000 tons annually. The property, extending over 600 acres, is held by Messrs. Russell, Hookey, and Co., under Sir C. Morgan, at a fixed rent, and, consequently, not subject to the inspection or supervision of the agents of the latter. Messrs. Russell and Co. have, as we are given to understand, lately formed a joint-stock company for the purpose of working the colliery on a more extensive scale, and probably with the view of ultimately erecting iron works; there being an abundance of ironstone of excellent quality, and also limestone on the property—while the extension of railways, and demand for iron, with the consequent advance in price, leads to this conclusion. It appears, from a statement made through the local press, that the colliery was minutely inspected within the past three months, and no danger was at that or any time heretofore entertained of any explosion arising from fire damp. We are given to understand that two engineers have been at the colliery for some days on behalf of Government; and we may, therefore, expect that the inquiry will not be simply confined to the question of the cause of the death of the poor creatures whose lives have been sacrificed, but will enter into the origin, and ascertain by minute inquiry whether every precaution was used, so as to prevent, as far as human power goes, the sad and melancholy accident forming subject of inquiry, for the question is one of serious moment, and not confined to any one particular locality. It is indeed to be regretted that a jury of neighbours—to use the expression of a valued correspondent—should be called upon to investigate accidents of this nature; it is the duty, and should be the province of the coroner to summon parties conversant with colliery operations, and not to refer questions so momentous, and involving inquiries of a strictly scientific character to parties ignorant of the subject on which they are called to pronounce a verdict, and whose opinion or decision may be swayed by their connection with, or relation in, business to those whose interests may be affected by the investigation. It appears, that the accident occurred in the "black" vein, a remarkably fine steam coal, which is about nine feet thick; the workings being to the rise, and which has always been considered the best ventilated part of the work. These workings extend under the Macheu Mountain, and the pitch of the vein is steeper there than in the deep workings, which extend under the flat ground in the valley. The men, having received their pay on the Saturday, did not resume their work till the Wednesday morning, and, it may be assumed, that an accumulation of fire damp had taken place in the interval. While there can be little doubt as to the precise spot where the explosion took place, one poor fellow being completely buried in the coal and rubbish, at some distance from where he was working; this man was cutting round a large block of coal, and, by putting in a shot on the morning in question, and consequently obtaining a large fall of coal, expected to make up for lost time. The holing was not of sufficient size to admit the lamp, and, probably the candle was resorted to—these are conjectures to a certain extent, but which, we doubt not, will attract the attention of the jury at the adjourned inquest; in the meantime, we readily place before our readers such information as we have acquired. We are given to understand, that the proprietors of the colliery are under engagements to supply the West India, Oriental, and Peninsula Steam Packet Companies, whose vessels have been lying under burr at Newport. The workings in the other part of the colliery have not been interrupted, and that where the explosion took place will, we expect, be immediately resumed, if not already at work.

#### DEVELOPMENT OF THE RESOURCES OF INDIA.

**FROM A CORRESPONDENT.** The railway intelligence from India is most important and cheering. It appears that the shares in the chief lines, which were reserved for the merchants and residents there, were all eagerly taken. This proves the excellence of the railway system in itself, when not surrounded and temporarily swamped by vicious adjuncts. The railways projected for India appear, *prima facie*, to be all useful, some necessary, and the majority probably largely profitable. That the reserved shares allotted to India should be so speedily subscribed for, is quite a new feature. We know, upon the authority of gentlemen long resident in Calcutta and Bombay, that it was with the greatest difficulty, until recently, that a tenth of the shares in any joint-stock company connected with India could be disposed of, in either of the presidencies. Almost every scheme having for its object the application of capital to increase the resources of India, by an Anglo-Indian company, has proved an abortion, principally from this very cause. Three projects—all of which were feasible, practicable, and promising—have perished, in our own knowledge, during the last few years. One to convert the rich iron ore of India into steel, commonly called "wootz" steel (the best of all steel for some purposes), and so to compete, at one-third the price in England, and one-fifth in France, with the produce of the Donnemara mines of Sweden, held exclusively by one English family, at any price they choose to charge. This proved a comparative abortion, notwithstanding the patronage it had received from the Madras Government, and other influential quarters. The steel was made—the ore shipped to this country—purchased in large quantities by Mr. Crawshay, and declared by those practical gentlemen, David Mushet and Dr. Uré, to be of the very best quality, yet the answer was—India, India—who would speculate on anything so many miles from home? A few years ago, an attempt was made to establish a British India Sugar Company, supported by some of the leaders of the great anti-slavery party in this country, and gentlemen who have since most successfully connected themselves with Indian railways, from their knowledge of the wants and capabilities of the country; yet it fell nearly still-born from the same cause. A gentleman, the secretary of the Chamber of Commerce of Bombay, and one of the interpreters of the Supreme Court, came to this country about eight years since, to endeavour to establish a company for cultivating the mulberry-tree in the Deccan, and on the Malabar coast, where a spirited Italian had, from his own humble resources, succeeded, to an astonishing extent, in obtaining silk; yet, though this gentleman was brought by the original merchant princes of India, the wealthy Parsees, he could obtain little or no support in this country, the answer being still the same—India is too far away; the returns must be necessarily remote, and we cannot superintend the circulation and application of our capital. With these facts before us, is indeed cheering to behold the present aspect of affairs. At home and abroad, Indian railways, even during the panic, maintained a high price in the market; and though they are subjected to many drawbacks which English and continental railways are not—though they are, first, so far distant; secondly, subjected to the arbitrary will and pleasure of the Honourable East India Company, without whose permission not one can be constructed; thirdly, quite new to the country and its inhabitants; and, fourthly, uncertain as to the engineering difficulties that may exist to impede, or possibly prevent, such construction on the lines laid down at all—save in the case of one of them, from the mouth of the river Hoogly to Calcutta, which was surveyed some years ago by Capt. Boileau, Government engineer, and others—still, in the teeth of all these exclusive difficulties and drawbacks, such is the feeling, both in England and India, of their necessity, expediency, and probable profit, that they are eagerly sought for and rise to premiums.

Other matters are also swiftly progressing, of vast importance to India and England. Not only has our enterprising countrymen, Lieut. Waghorn, succeeded in shortening the distance by many days of the overland route, but Mehemet Ali, the despot, the enlightened despot of Egypt, is doing his part to accomplish the same object. A railroad will soon span the Great Desert, and Suez and Alexandria become within a few hours' distance of each other. This great object of the late Galloway Bey, now under the superintendence of one of his brothers, is likely to be accomplished; and thus the chief objection of advancing capital towards Oriental enterprises will become "small by degrees and beautifully less," as a journey may be taken by a jealous or suspicious shareholder to the sunny clime of the East, in order to watch what is doing with his money, in much the same time he could take his usual trip to the Rhine, or pay his annual visit to the luxuriant and not over moral salons of the Gallic capital. It is a somewhat singular, and we hope auspicious, circumstance, that two brothers of the same family (after a third has died in the projection), should be employed at this moment in shortening the distance to India—the one in the middle of the way, the other at the end of it—the one for travellers by land, the other for travellers by water—the one to surmount the perils of the desert in Egypt, the other to conquer the sands of the great deep in Bengal. Napoleon Buonaparte justly saw and declared that the success and glory of England were "ships, colonies, and commerce." He was right in his time. Had he lived till this period, and perceived how English science was wedding land to land, and sea to sea; and English capital expended by millions to traverse the mighty plains of India, and cut through the mountains of our western colonies—overcoming obstacles hitherto deemed insurmountable—he would have added other words, and sighed for "ships, mines, railroads, colonies, and commerce."

**INDIAN RAILROADS—WHERE IS THE IRON TO COME FROM?** On a previous occasion, we made some temperate remarks on the railway question—not with the view of damping the ardour of speculators, but merely to try to induce them to bestow some little preliminary reflection on the subject. We stated, that in England the materials for a railroad cost from eight to nine thousand pounds per mile; and we were not very clear as to where either the materials or the money was to be found for the two or three thousand miles projected in India. As regards coal, however, we showed that it was to be obtained in various parts of the country where the railroads are to be made, and that thus an enormous part of the outlay might be saved with great benefit to India; and we now find that a correspondent of the *Bombay Times* has taken up the subject as regards iron. "The question (say he) resolves itself into this:—What need has India for importing iron-rails, or any other machinery for railroads? The resources of this country, I maintain, are fully equal to meet the demands of all the railroads (projected, or that may hereafter be brought on the tapis), and for the general consumption of the country. The grand staple requisite is capital,—and English capital and enterprise will be sent out to work those mines in India. Look at the iron mines of Gwalior, or those about Shahabad in Malwan, and nearer home, those of the Almorah range. The iron that is produced in these three districts, by native artisans, is so badly smelted, that in working it up for any common purpose the loss of weight is from *one-fourth* (which is from the finest quality) to *one-half*; but one-third is the common average. Were English smelters to take up the business, they would greatly improve the quality of it. I take the price of native iron to be at six rupees a maund, a third of which is two rupees, equal to eight rupees a maund, besides the labour required for the reduction; this would make its value equal to sixteen or twenty pounds per ton. English skill, talent, and enterprise, will reduce it to half, I have no doubt. Farther, this loss of weight is for large pieces of iron, as cart-axes and ploughshares, &c.; but re-weld this, and you have another reduction of weight, of one-sixth to one-fourth. The loss of weight in welding English bar-iron or pig is barely ten or twelve per cent.—an immense consideration." We trust that the Indian press will not suffer this hint to be lost; and in point of fact we really do not see where the enormous quantity of iron required for India is to come from, if not from India herself. Iron already begins to scarce in France, and its price is rising everywhere; and if we consider the quantity that will be required in England for many years to come, for her own consumption, the question will not by any means appear an easy one. To supply India with steam-engines alone requires a quantity of iron, of which perhaps few of our readers have any idea. The following is the amount of steam power actually at work in Bengal: 

	Engines.	H.-power.
Sugar works and refineries .....	29	291
Docks .....	8	111
Collieries .....	8	80
Flour and rice mills .....	6	158
Paper manufactories .....	4	46
Miscellaneous .....	15	238
Government departments .....	8	168
Sea steamers .....	20	1030
Inland steamers .....	22	770
Packets .....	10	1980
Tugs and pleasure-boats .....	21	1114

From this statement, an Indian paper remarks, "it would appear that there are in active employment at this presidency, no fewer than 151 steam-engines of nearly 6000 horse-power. We believe that those who are not ignorant of the great impulse which has been given within the last seven or eight years to the introduction of steam power, will yet learn with considerable surprise the extent to which it has been carried, and the vast amount of capital which has been embarked in it. It is generally supposed that the first steam-engine ever set to work at this presidency, was that which the Scarampona missionaries introduced in the year 1820 for the manufacture of paper, which then sold 150 per cent. beyond the price which it now realizes in the market. There is a tradition that, two years before that event, Mr. Matthew Smith employed a small engine of two horse-power in his dock-yards, but like all tradition, lay or ecclesiastic, it is involved in extreme uncertainty. Between the years 1820 and 1837, our researches enabled us to trace the introduction of 65 steam-engines of 1800 horse-power; namely, 35 of 574 horse-power by private individuals, and 30 of 1258 horse-power by Government. It is, however, during the last seven years, since the liberty granted to Europeans to hold lands in India has come effectually into operation, that the extraordinary increase of steam power, as applied to agricultural improvements has taken place. During this period the number of steam-engines, introduced into the country by private individuals and public associations, as well as by Government, amount to 98, and their aggregate horse-power to 4700. Neither has the increase of steam machinery reached its height.—*Indian News*.

## ATMOSPHERIC RAILWAY GAZETTE.

### Proceedings of Public Companies.

#### MEETINGS DURING THE ENSUING WEEK.

MONDAY.....	Cornish Mining Company—offices, at Two.
	Western Australian Company—offices, at One.
	Cork and Waterford Railway—Hall of Commerce, Twelve for One.
	Great Wheal Williams—Stonehouse, at Twelve.
TUESDAY.....	Metropolitan Railways Junction—London Tavern, Twelve for One.
WEDNESDAY.....	Worcester, Tenbury, and Ludlow Rail.—London Tavern, Twelve for One.
	Duffryn Llynn and Porthcawl Railway—Bridgend, at Twelve.
	Wheat Trelawny—Fountain Inn, Llandeilo, at Twelve.
	Exeter, Dorchester, and Weymouth Railway—offices, Twelve for One.
THURSDAY.....	Teivision Mining Company—Pearce's Hotel, Truro, at Twelve.
	London and County Bank—offices, at One.
	British Amunty Company—offices, at One.
FRIDAY.....	Stony Park Mining Company—on the mines, at Twelve.

[The meetings of Mining Companies are inserted among the Mining Intelligence.]

#### CHEPSTOW, FOREST OF DEAN, AND GLOUCESTER JUNCTION RAILWAY.

A special general meeting of the shareholders in this company was held yesterday, at the London Tavern, for the purpose of considering the propriety of amalgamating with the Midland Extension Railway, and generally to consider the affairs of the company.

E. F. DAYRELL, Esq., chairman of the board of directors, presided.

From the statements submitted, it appeared that, on the formation of the company, up to the period of the line being surveyed, and the plans subjected to the Board of Trade, the directors were ignorant of any opposing line; but it appearing that the company would have to encounter a serious, or strong opposition, on the part of the South Wales Railway, it was deemed desirable to form an amalgamation of the company with that of the Welsh Midland Extension, which held out prospective advantages to the shareholders. The expenses heretofore incurred might be assumed as one-fifth of the amount of the deposit, and the arrangement entered into with the Welsh Midland Extension was to the effect, that any excess thereon would be defrayed by such company.

The CHAIRMAN expressed the conviction entertained by himself, and his co-directors, of the advantages which would attend such amalgamation, while at the same time he begged distinctly to state to the meeting, that the board had in no way committed the company,—and the question of amalgamation, or otherwise, was perfectly open for their consideration and decision.

Mr. PHELPS, who, it appeared in the course of the proceedings, was formerly the solicitor to the company, addressed the meeting at some length,—and in the end, proposed a resolution to the effect, that the amalgamation proposed by the board of directors, be not carried into effect; which having been seconded, and submitted to the meeting, was carried.—A lengthened discussion, partaking of a personal character ensued—it being stated by the chairman, that Mr. Phelps, with whom the resolution referred to originated, had been dismissed by the directors, after having subjected the company to an excessive expenditure, and being found to be undeserving of their confidence.

From further explanation, rendered by the chairman, it appeared, that the whole number of the directors had respectively paid their calls on 300 shares each, and that they were most earnest, not only to meet the wishes of the shareholders, in carrying out such course, as they might deem fit to recommend; but that the accounts of the expenditure incurred were open to the inspection of all parties interested, and would be readily submitted to any committee of the shareholders, which might be appointed. A resolution having been proposed, to the effect, that the affairs of the company be wound up; such was readily acceded to by the chairman, on behalf of the directors, who expressed their readiness to return to the shareholders 28s. per share, out of a deposit of 21. 2s.; at the same time, undertaking to render the accounts of the company, and make such further division as they might be enabled to do; the amount of 28s. per share being payable within the next week, or 10 days. A strong expression of feeling was manifested on the part of the meeting towards the chairman and directors, for the honest and straightforward course pursued by them, and a vote of thanks passed accordingly, when the meeting is separated. In the course of the proceedings the chairman stated, that the Standing Orders of the House of Commons, as to the deposit of plans, &c., had been fully complied with, the amount received by deposits being 54,293*l*, while the expenses incurred amounted to 14,000*l*, or thereabouts.

#### GREAT WELSH CENTRAL RAILWAY COMPANY.

A meeting of scripholders and others interested in this unfortunate undertaking was held at the offices of Messrs. Amory, Sewell, and Moore (the solicitors to the Protective Society), on Wednesday, the 29th inst.—D. W. HARVEY, Esq., in the chair.—The meeting was far from being numerously attended, the 14 or 15 gentlemen present not representing more than 500 shares in the aggregate, while one alone was the holder of 180 shares, and, as we understand, another possessing 100.—Mr. HARVEY, in opening the proceedings of the day, entered at considerable length into the object which had been the cause of calling the meeting, in the course of which he deprecated notes being taken if for the public press—as the several reporters, some half dozen in number, had been refused admittance—the meeting partaking of a private character, and it being considered impolite to give publicity to the proceedings.—We regret this decision of the chairman, who, indeed, had convened the meeting, as being so unlike the course we might have expected from a gentleman, who, we should have supposed, would have pursued a course so different, and rather courted, than shunned, publicity. The result, however, perhaps, shows that the commissioner is a good general; while we have to express our regret that our reporter being excluded, our report is somewhat meagre, but of the correctness of which we are assured. The sum and substance of the proposition submitted by Mr. Harvey was, that the several holders of shares should deposit the same with the solicitors, subject to a subscription not exceeding 5*s*. per share, towards the expenses to be incurred in raising the question in courts of law and equity, as to the liability of scripholders to pay any, or what proportion of the charges, for engineering, and other incidental expenses, attendant on the formation of the company; the amount per share, according to the statement of the provisional committee, being equal to 17*s*. 5*d*. per share, on the deposit of 21. 2s.—The CHAIRMAN submitted that, in the first instance, an offer of 4*s*. per share should be made in liquidation of all claims, being the sum fixed by the provisional committee as a fair proportion—and that in case of such sum being refused, then to authorise the solicitors to take proceedings at law and in equity, for the recovery of the entire amount; and the opinion of counsel, bearing on the question, was read—but being confined to the expression of opinion, without the question, or case, being placed before the meeting, and, moreover, the case cited therein, in support of the opinion expressed, being antecedent to the Joint-Stock Companies' Registration Act coming into force, could hardly be said to apply.

Mr. STAFFORD, a legal gentleman, who has taken an active part in the proceedings at the meetings held of late, and who stated himself to be a representative of a holder of ten shares, but such appeared to be the extent of the interest represented by him, entered at some length on the question before the meeting. The proposed resolutions, which having been read by the chairman, he considered that, to try the question would, in case of failure, be attended with a cost of 350*l* or 400*l*; and hence it became a question, as to whether a subscription of 5*s*. per share would be equal to the cost which might be incurred; but he assumed, that as the expenditure was limited to such amount, any excess would be discharged by the Railway Protective Association.

Mr. HARVEY, in reply, stated that such had never been contemplated, nor could it be expected; the objects of that association being confined to obtaining legal opinions, and making compromises, in cases where such course might be deemed desirable. This explanation evidently took the meeting by surprise, as it was evident, in the absence of such a system, it would be necessary that a contribution should be made on a large number of shares, so as to ensure the object being effected; and, in the end, it was understood that the project should not be carried out, unless subscriptions, to the extent of 1000 shares, were received. Much desultory conversation ensued, which terminated without any satisfactory result; the partisattending the meeting separating without the proposed resolutions being moved, or any conclusion arrived at. Under such circumstances, we should hardly have deemed it necessary to advert to the meeting, were it not for the exclusiveness with which the chairman wished to surround it.

#### AUSTRALIAN AGRICULTURAL SOCIETY.

The annual meeting of this company was held on Tuesday, the 20th instant at their offices in King's Arms-yard, Moorgate-street, to lay before the proprietors a statement of the result of the operations during the past year.

Among the gentlemen present were J. S. Brownrigg, Esq., M.P., in the chair; C. D. Bruce, Esq., W. S. Davison, Esq., John Hodgson, Esq., S. Majoribanks, Esq., M.P., H. Porcher, Esq., G. R. Smith, Esq., &c.

After the usual preliminary business, the CHAIRMAN observed—that he regretted there was so small an attendance of proprietors, more particularly as the general tenor of the report would be so very satisfactory. He did not think it necessary to make any remarks upon the subject under consideration until the report had been read, after which he should be most happy to enter into any explanation, if required.

The CHAIRMAN then read the report, which congratulated the proprietors upon the general improvement of the colonies, and the favourable prospects they held out. There had, however, during the past year, been no improvement in the sale of live stock, and a still further diminution in the demand for corns had taken place; yet, by the economy used in the company's operations for the year 1844, there was a considerable increase in the balance of receipts over disbursements, as compared with the three preceding years. The herds and flocks belonging to the company were in good condition, though many had been lost and injured by casualties and unavoidable accidents. At one time eighty sheep were killed by a fall of hailstones. The total number of sheep was 417,257; of horned cattle, 7452; of horses, 874; and 86 asses and mules. The seasons were very favourable, and the stock generally was in good condition, colonial

furs being bought up greedily, and everything wore an appearance of improvement. The sales of the company's stock in 1844 were extremely small, producing only 4811. 0s. 4d. The number of persons employed upon the company's property amounted to 511 altogether, 307 of them being free men, 103 ticket-of-leaves, and 101 convicts, showing a considerable diminution in the employment of the latter. A large quantity of tallow had been manufactured on the estate, besides the salting of a great number of casks of beef. There had been shipped during the past year 400 bales of wool from Port Stephens, and 213 from Peel's River. The net produce of the sales amounted to, from coals, live stock, and rent in New South Wales, 14,356*l*. 12s. 11*d*.; and from 354 hides, 560 horn tips, 48 casks of tallow, and 2608 wool billets, for whale spikes, imported into England, the further sum of 17,806*l*. 11s. 8*d*.—total, 32,163*l*. 4*s*. 7*d*.—while the expenses had been 22,563*l*. 18s. 4*d*. showing a surplus revenue of 9599*l*. 6*s*. 3*d*. which had enabled the directors to propose that a dividend of 1*s*. per share be now declared, to be made payable on the 27th inst., being at the rate of 3*s*. 6*s*. 8*d*. per cent. on the paid-up capital of the company. In conclusion, the report stated that the company had obtained a licence from the Home Secretary for the alienation of 500,000 acres of their land. Having read this, Mr. Brownrigg commented upon the various topics it touched upon. He congratulated the proprietors upon the fair prospects their property held out to them; for, though the receipts had very much fallen off from the total cessation in the sale of live stock, and a diminution in the demand for coals, yet by the reduction of the expenses of the company they had been enabled to keep up the amount of balance in hand. He hoped that next year they would be able to show a still further diminution in their expenditure. With some further remarks of a similar tendency, the Chairman concluded by moving, that the report should be received and dealt with in the usual manner.—The report was unanimously adopted.

Some routine business was then dispatched. The chairman and directors of the company were re-elected for the four ensuing years, with thanks for their attention and services.

Other officers of the society were reinstated, and Mr. Brownrigg having been complimented upon the able performance of his duties in the chair, the court broke up.—The balance sheet showed that the receipts for the past year had been 35,905*l*. 18s. 1*d*., and the disbursements, 32,011*l*. 9*s*. 10*d*., leaving a balance in hand amounting to 2894*l*. 3*s*. 3*d*.

#### BRITISH AMERICAN LAND COMPANY.

A special general meeting of this company took place at the London Tavern, Bishopsgate-street, on Thursday, the 29th inst., which was attended by a large number of the proprietors.

J. J. CUMMINS, Esq., in the chair.

The CHAIRMAN, having apologised for the unavoidable absence of the governor of the company, stated, that the meeting had taken place out of the ordinary routine, in consequence of the presence of Judge Preble, who had come over from the state of Maine, in the United States, in order to promote the railway, for which the proprietors of the British American Land Company had already voted a large sum of money, between Montreal and the Atlantic. As a great portion of it would pass through the lands of this company, Judge Preble had by request had an interview with the directors on the subject. He needed not to say that the proprietors were deeply interested from having subscribed a considerable sum towards it, and more particularly, as upon it would depend the instant improvement of their lands in the Eastern townships.—The DIRECTORS, having heard the statement of the learned judge, thought it would also be interesting to the proprietors to embrace the opportunity of hearing what he had to say while he was present in this country. They were aware that Mr. Galt had returned to Canada, after having been some time in England, to promote the interest of the railway. The directors had nothing fresh to propose to the company, as they were waiting the result of Mr. Galt's interview with the directors of the railroad in Montreal. The result of that might induce the directors to place a new proposal before the proprietary; but, in case the project should be given up after all, Mr. Galt had instructions not to let the expenditure towards the expenses exceed 500*l*. on the part of this company.—A letter from Mr. Galt, dated from Sherbrooke, on the 27th February, 1845, was then read to the meeting, from which it appeared that the subscriptions in the eastern townships had increased from 300 to 600, and that the rest, in order to make up the amount of 6000 shares, was expected to be made up in Montreal.—The CHAIRMAN stated, the next letter of Mr. Galt was anxiously expected by the directors; but, in the meantime, he dare say the meeting would be content with the interesting statement of Judge Preble, relative to what the board in the American state anticipated in respect to the proposed railway.—Judge PREBLE, being called on by the chairman, expressed his regret that it was impossible to condense in a few remarks a statement of the various advantages to be derived from the project under consideration. He would first call attention to the very peculiar conformation of the portion of country over which the proposed railway would pass from Canada to the Atlantic at Portland. This line would be the channel of communication with the inland seas in the interior regions; the value of the American trade of which now exceeded the amount of the entire exportation of all the products and manufactures of the United States to all foreign countries. Looking at the natural difficulties attending the navigation round by the St. Lawrence, and the direct communication this line would open for the cities of Montreal and Quebec with the Atlantic, he was fully convinced that the line proposed must be an undoubtedly good investment, as well as a great public improvement. The produce of the upper regions could be brought by this line at a small expense, and better than by any other channel. The directors of the American line fully believed that it would give back to Montreal, and even to Quebec, a large share of the trade which had been diverted from those cities, and would secure to them the trade they were still in danger of losing through other channels being adopted. The distance between Portland, in the state of Maine, and the city of Montreal, was only 20*m*. statute miles in a direct line, about one-half of which would be within the limits of Canada. The advantages again were that, in the winter season, the produce, instead of being locked up for six months, might pass freely to the Atlantic. The produce from the lakes might be loaded, put into propellers, and carried down to Montreal, when it could be put into cars, and, less than one day after, be at the Atlantic. It had been said that, to arrive there, they must go through the American territory; and, so to get to the lakes, they (the Americans) would have to pass over British territory; so what they demanded on their side, would be demanded on the other, which rendered it a mutual undertaking (hear, hear). Under this view, it would be impossible that there could be any difficulty in carrying the project through; it would, of course, be carried through, for they were ready in Maine, and they only asked for the co-operation of those in Canada. There was now a very excellent line of railway from Boston to Portland, and they had only 120 miles to bring them into Canada. With all these circumstances, he would ask them if ever a project were brought forward, more pregnant with advantages as an investment than the present, going, as it did, from the nearest point possible of the St. Lawrence on one side, to the nearest of the Atlantic on the other. After a careful examination, he had come to the conclusion that no other railway, or any other system of transport, could come into successful competition with this undertaking. In consequence of the delays, trans-shipments, and damage, on other routes, a saving at least of 5 per cent. would be effected by this. There was only one railway that could come into competition with this, which was, from New York to Lake Erie. They had found the advantage of a short cut across, and went to work some years ago; and, after the expenditure of several millions of dollars, they abandoned it, which arose from the difficulties they found in making it, being a project of 500 miles of continuous railway, through a difficult country; but they had got to work again, from seeing the value of the communication with the lakes; and there was a probability they would carry it through, but it would be at a cost of something like \$20,000,000. Now, the whole of the expense of making the line all the way from Portland to Montreal would not be more than 1,250,000*l*. sterling, as they had all the materials, except iron, at hand; labour was cheap; land would, in many instances, be given for the purpose. The railway from Boston to Albany cost \$10,000,000, only over an extent of 20*m*. whilst theirs was only 1,250,000*l*. The Board of Trade at Montreal had gone minutely into the inquiry, and they wished Mr. Cringan, now in England, vice-president of that board, were present, as he could make a statement himself more satisfactory, as he was so well acquainted with the business. The question, then, simply was—whether they would aid a project which would effect a communication with the Canadas, and the great internal waters, and the ocean, at a distance of only 240 miles; or would they suffer to continue the tedious navigation round by the St. Lawrence, where the navigation was obstructed for nearly six months in the year? The superiority of the harbour of Portland over that of Boston was well known; instead of being detained, in certain states of the weather, for 20 hours, they could sail at once into Portland from the deep water, and safety of the harbour; all they had to do was, to keep off the shore, till they arrived there. So easy was the harbour of ingress, that masters unacquainted with the place, were known to take vessels in without the aid of pilots, and merely on reference to their charts. He again said that they had no competition to fear, except from the other—that is, the New York-line, which would require an outlay of about \$20,000,000, whilst this line would render the lands of the British American Land Company of little value, and much that was now worthless, would become, in a short period, valuable for the produce of grain especially. (Hear, hear). If this company then would only look at the immense extent of land they own in the colony, they thought they would not hesitate even themselves to build the railway, for he really believed that such would be the best investment they could possibly make for themselves, for it must become the high road for emigration, as well as for the transport of produce, from the interior to the Atlantic, and thence to Great Britain, or the other colonies, as well as for the trade from the mother country. It had been said, that on the Canadian side they made arrangements for allowing the troops to pass on the railway; he saw no difficulty why troops should not go backwards and forwards on that road, and on the American side also. In the state of Maine, they had the entire

control of their railway in their own hands, which could be seen by reference to their charter; it was absolutely given up to them in such a way, that no power could interfere with its management, therefore, they could make any reciprocal terms with the Canadian Company. Even the United States could not interfere in this matter, for the state of Maine was a country of itself, for all such purposes, with whose arrangements the United States had no more right to interfere than France or England. The arrangements then would be a subject for the consideration of the two companies only, and it was only for both companies to go to work conjointly, for they must be bound, so as to be for all practical purposes one continuous line, by mutual compact and interest. In relation to the control of the American portion of the railway, any person had a right to hold stock, and have a vote in proportion to his shares, like the shareholders in Maine themselves, so that if the majority should get into the hands of the Canadians and British capitalists, they would have the control and management of the railroad; but why should any apprehension exist, when the reciprocity and mutuality of interest, which must follow the connection of two such railroads, would be of the most complete description. He considered these circumstances would induce gentlemen here to be anxious for the completion of such a railroad as they were in Canada, and to take up so much of the stock as would enable the Canada people to choose their board of directors, after which the board of directors for the American end would come to a mutual understanding, so as to act in concert together. There could be no playing upon each other, they could merely ask the favours they were ready to concede themselves; let them, therefore, take up their proportion of shares, and thus show an earnest of working out the undertaking, and the people on the American side would be prepared to do likewise.

The learned judge, in his observations, frequently made reference to an extensive map of the States, in which the line was portrayed, and in the course of his remarks, read the following extract from a paper prepared by him—

The prize, for which rival interests are now contending, is the trade and commerce of that extensive and fertile region of country, which borders the great chain of lakes in America, whose waters empty themselves into the Atlantic by the River St. Lawrence. The United States' secretary-at-war, in his report of Nov. 29, 1845, laid before Congress, states, in reference to the American trade of those lakes, that "its estimated annual amount now exceeds in value the entire exports of the products and manufactures of the United States to all foreign countries;" and further, that it is "now estimated at one hundred millions of dollars annually, and is increasing with surprising rapidity." To complete the estimate of this trade as a whole, we must add the annual value of the Canadian portion, not taken into the account by the American secretary. The natural outlet to the ocean of the trade and commerce referred to, is the St. Lawrence; but the spirit of enterprise, with the aid of modest improvements, has been, and still is, successfully at work,—foretelling this trade, and draining it off, and diverting it to Atlantic cities. The natural difficulties attendant upon the navigation of the St. Lawrence to the sea, as proved by recent disasters,—and the insurmountable obstacles to all navigation, below Montreal and Quebec, for nearly one-half of the year—have contributed greatly to that success. From the force of circumstances, Montreal and Quebec are not reliable markets, for the immense products of the region I have spoken of, except to a very partial and limited extent—say, more; they never can become such, unless some mode is devised and provided, whereby the products of the interior, when brought down to those cities, are certain not to be detained there, but to be forwarded to their ultimate destination, with as much safety and rapidity, and at as little expense, as the thing could be accomplished through any other channel. Hence, the idea of connecting the St. Lawrence at Montreal by railroad, with the Atlantic at Portland. The best-informed friends of this enterprise believe that, if carried out, it will be the means of restoring to Montreal, and even to Quebec, a large share of the trade, which has been diverted through other channels to other markets, besides securing to those cities a trade they are in danger of losing. Their conclusions are based in part upon the following facts:—

1st. Portland is the point where the Atlantic makes its nearest approach to Montreal, the distance between the two cities being only 240 statute miles—about the same as between London and Liverpool. In order, however, to avoid mountain ranges, and to take advantage of favourable passes, the distance by railroad would probably be increased to about 240 miles—one-half of which will be within the limits of Canada.

2d. The railroad once constructed, and in operation, it is ascertained on careful inquiry that a barrel of flour may be transported profitably from the most remote regions of Huron and Michigan to the Atlantic, for a sum not exceeding 9*s*. 4*d*. sterling; whereas, by no other channel, it is believed, does it reach the Atlantic from those regions, at an expense less than 50 per cent. in advance on that sum. Moreover, a barrel of flour may be transported at any season of the year from Montreal to Portland for a freight not exceeding 1*s*. 6*d*. sterling.

3d. The harbour of Portland is one of the safest and best in the United States. It is so easy of ingress and egress for ships and vessels, that there is no occasion for pilots. It may be, and actually is, entered and left by steamers in the darkest night and thickest fog, with perfect safety. It is free from obstruction from ice in winter, is capacious, and affords the best of anchorage. It combines more advantages as an port for Montreal in summer, than any other port in America. Its geographical position, in regard to those cities, is remarkable. The distance, for instance, from Cape Sable (U. S.) to Montreal, in a direct line, is 420

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compared the tables of premiums for single lives with the calculations made at this office. Wishing your directors every success in this excellent undertaking, I am, &c." The balance-sheets showed a very large increase in favour of the society, not only in the amount of money invested during the year, but also in the greatly extended receipts of premiums over all preceding years.

The CHAIRMAN : The report now read contains a full statement of the past proceedings and present position of the association, and nothing now remains for me but to say that, should any explanation be wanted, I shall be very happy to afford it.

Mr. KINSMAN, of Manchester, one of the local committee, then moved—"That the report for the year, 1845, as now read, be adopted and printed for circulation at the discretion of the board."—He had arrived in town on a journey to the west of England, and having called at the office, he had been persuaded to come to the meeting and move the resolution he had now done. He felt most happy in doing so, as he considered the report just read to be a most satisfactory document in every particular (cheers).—Mr. E. J. GOSELL seconded the resolution. He felt much gratified at the report just submitted, and in that gratification he was sure the meeting fully participated. (Hear, hear.) He was satisfied that the directors had done their best to advance the interests of the association and to their energy and perseverance they (the members) were much indebted for their present improved position. He would suggest to the members present that Chambers's plan be adopted, which was for each member, during the next year, to bring a member. (Hear, hear.) That step would at once place the association in a most commanding position.—The resolution was then put and unanimously agreed to.

Mr. J. W. WATKES rose to move the next resolution, which was as follows:—"That Mr. Richard Henry Jones and Mr. Samuel Notley be re-elected managers of the association, and Messrs. John James Iselin, Samuel Jepps, Henry Pearson Maples, and Richard Price be elected managers."—He knew Mr. Jones well, as one of the oldest and best friends of the association, and one who, in his capacity of deputy chairman, had done much to advance their interests. Mr. Notley had also been one of his colleagues, and a gentleman that had used great exertion to advance the welfare of the body. The same might be said of the other gentlemen named in the resolution, to whom he believed they were also much indebted for the present flourishing state of the institution.—Mr. LLOYD had much pleasure in seconding the resolution proposed by Mr. Welch.

The Chairman was about to put the resolution, when a member in the body of the room suggested that the names should be put separately, as he believed the Act of Parliament required that it should be so. The CHAIRMAN said he did not think that such was the case; yet, in order to make sure, he had no objection to put the names in that way. He then submitted the names contained in the resolution to the meeting separately, and they were unanimously agreed to as managers of the institution for the ensuing year.

Mr. JONES returned thanks for the honour done him in his re-election. He had hitherto done his best to serve the interests of the institution, and would continue to do so. He was much satisfied at the general tenor of the report, particularly regarding that portion which suggested that each member should endeavour to bring another member into the association during the coming year. He was satisfied if they made an effort they would succeed in carrying that recommendation into effect.—He had a resolution to propose bearing on another point in the report. It was intimated in the report that during the last year a most beneficent and noble act had been performed by the house of Magniac, Jardine, and Co., towards their clerks. I would also allude to the most liberal gift of Mr. Samuel Jones Loyd to his clerks, showing that there is springing up on the part of principals a greater regard for those who serve them. I trust so good an example will be followed by other houses; indeed, I have some reason to believe that another eminent firm contemplates a similar proceeding to that of Magniac, Jardine, and Co. (Lord applause.) The resolution he had to propose was as follows:—"That the warmest thanks of the meeting are due to Thomas Barling, Esq., M.P.; Thomson Hankey, Jun., Esq.; W. G. Prestcot, Esq.; and Baron L. de Rothschild, for their countenance and support as trustees of the association; and also to John Abel Smith, Esq., M.P., for his continued interest in the prosperity of the association, and to himself and partners for their late distinguished mark of approbation of the society."—Mr. SAWTELL seconded the resolution, which was put and unanimously carried.

Mr. MAITLAND moved the next resolution, which was one in which he was sure they would all agree. It was—"That the cordial thanks of this meeting be presented to the medical officers both in town and country, to the local agents and committees, to the consulting actuary, and the honorary solicitors, for their valuable services during the past year." He was persuaded they would all agree that they had been much indebted to the gentlemen named in the resolution for the assistance they had given the association; particularly were they under obligation to their medical officers. They had granted 211 policies during the past year—and nearly 600 from their first establishment; and yet, out of that 600, up to the 31st of December last, there had been only one loss, and that was for 100z. From this it would appear that their medical officers had exercised no ordinary care in the selection of lives to be insured—and for this they were entitled to their warmest thanks.—Mr. REYNOLDS seconded the motion, and said he need not add one word to what had just been offered by the previous gentleman. The secretary, the managers, the solicitors, and medical officers, had all, he was satisfied, done everything in their power to advance the association. For himself, the sole reason why he retired from taking an active part in the management, was having other avocations to attend to that would have interfered with his attending to their interests in an efficient manner. He greatly regretted having to leave, after struggling with them up hill to their present satisfactory position; but he did not like to hold office unless he could attend to its obligations. Unless he could do so it was his bounden duty to retire. He, however, in doing so, congratulated them on having, in their officers, a body of gentlemen who would leave nothing undone that energy, attention, and business habits could achieve for them. Under such direction they could not fail to bring their affairs to a most satisfactory and triumphant issue.

The CHAIRMAN, on putting the resolution to the meeting, observed that Mr. Reynolds had explained to the meeting the cause of his retiring from the management. He had a letter from Mr. Hudson, explaining also the cause of his retirement, and it was gratifying to know that neither of those gentlemen had retired from any ill feeling towards the society, but solely on account of their other avocations rendering it impossible for them efficiently to perform their duties as managers.—The worthy chairman read the letter from Mr. Hudson, in which he complimented the society highly, and wished it the success deserved. The resolution was then declared to be carried unanimously.

Mr. JOHN JAMES ISELIN, as one of the newly-elected managers, begged to return thanks for the honour that had been conferred upon him. He could assure the gentlemen present that his earnest endeavours should never be found wanting in order to promote the best interests of the society—and he hoped to receive and deserve at the conclusion of these exertions the same feeling of satisfaction that had been displayed towards those whose office he had been so undeservingly selected to fill.—He could assure those present that it would be his greatest happiness in after years to meet them with a statement that the success of the society had increased in the ratio of a hundred-fold. (Cheers.)

ALFRED SMEE, Esq., Fellow of the Royal Society, rose to return thanks. He could assure the meeting that their medical officers had striven all in their power to promote the interests of the institution, and he was happy to say that, according to the report, their exertions, had been crowned with success.—The duty that devolved upon their medical men was one of difficulty and responsibility.—Every gentleman who was in that room had had to come before them, and though they had not been more than ten minutes in their company, they had had to look through their bodies, and render that which was opaque transparent.—(Laughter)—in order to discover not only whether they were then labouring under any disease but what disease they had suffered from, and what they might probably be subjected to.—The examination might by some be considered as a farce, but as a medical man he could assure them it was no such thing.—(A laugh).

Mr. HONEY then rose to move the next resolution. Two years since he had felt it to be his duty to move that some remuneration should be made to the board of management; at that time it was stated that the funds of the society were not in a condition to meet such a suggestion, but now the case was different. From the report that had been read it was apparent the society was progressing most favourably—and that 3000 might, without detriment, be set apart for their services, as some slight remuneration for their arduous duties.—Such being the case he would move.—That the best thanks of the meeting are due to the board of managers for their unremitting attention to the affairs of the association, and that the sum of three hundred pounds be awarded to them for their efficient services in forming the association, and for their exertions to promote its interests, and conducting its details during the past five years.—Mr. WILLIAM READ seconded the resolution. A GENTLEMAN in the meeting hoped that it was intended that the remuneration should be retrospective? Mr. R. H. JONES—Oh, certainly.—The resolution was carried unanimously.

The CHAIRMAN, on behalf of himself and the other managers of the institution, begged to return their thanks for the very cordial and hearty manner in which the meeting had acceded to the proposition of devoting 300/- as a remuneration to the managers for their services to the institution for the last five years.—He was sure it was the wish of all the managers to serve the society gratuitously as long as the funds were not sufficient to give them any remuneration—but he thought that the time had now arrived when the funds of the association could bear it, and he felt gratified that the members present had taken the same view of it as the managers had done. He could assure the meeting that they might rely upon the best exertions and endeavours of the managers in future to promote the interests of the association, the value of which he had no doubt would be felt more and more every year.—He was sure it would make vast progress by its own merits, aided, as it would be, by the exertions of its members.

A GENTLEMAN in the meeting was desirous of knowing whether any remuneration had been given to the medical officers of the company.—The CHAIRMAN said that a small remuneration had been given to the medical officers for the year 1844 and 1845, but that remuneration was totally inadequate to their great services.—Indeed, it was given more as a compliment than as a remuneration.—It was the wish of the managers of the institution to reward all its officers, and he was sorry that the small compliment that had been given to the medical men was not much more.—The same GENTLEMAN hoped the time was not far distant when they would be properly rewarded for watching over the interests of the institution.—The CHAIRMAN observed that, if any gentleman had any further question to ask, he should be happy to answer it. He could assure the meeting that the managers courted inquiry on all occasions. (Cheers.)

Dr. MULLINS then rose to propose—"That the thanks of this meeting are cordially offered to the gentlemen of the press for the kindly spirit invariably manifested by them in advocating the cause and objects of the association."—He appeared before the meeting in a two-fold capacity, but he trusted that he should not be charged with duplicity.—(Cheers and laughter). A great deal had been said about the Military militia, but he did not refer to that, but to the volunteers. (Cheers). The press had always advocated the objects of the Provident Clerks' Institution—(Cheers)—or he might call it, the Provident Clerks' Volunteers.—(Cheers). The Sun shone upon them.—(Cheers and laughter). The Chronicle registered them.—(Cheers). The Post delivered them.—(Cheers and laughter). The Advertiser posted them.—(Cheers). The News illustrated them.—(Cheers). The Examiner passed them.—(Cheers). The Spectator looked favourable on them.—(Laughter). The English Gentleman had taken them by the hand.—(Great laughter)—and they had a trusty Sentinel, and two good magazines in the Banker's and the Post magazines.—(Great laughter). In conclusion, he trusted that the meeting would with the examination carry the resolution he had proposed to so useful and necessary a body as the post press.—(Cheers). Mr. JONES seconded the resolution, which was carried unanimously.

Mr. F. CLARKE then moved—"That the members present, fully appreciating the great importance and utility of the association, pledge themselves to increased individual exertion to introduce new members, and to use every means to make the principles and objects of the association known." Mr. CLARKE seconded the resolution, which was carried unanimously.

The CHAIRMAN said that the business of the meeting was now concluded. He hoped that every member present would strive all in his power to carry out the spirit of the resolution, because he felt convinced, if it was acted upon, there could be no doubt the favourable results of 1845 would be far exceeded by those of 1846.

Mr. D. MULLINS thought the meeting ought not to separate without expressing its gratitude to Dr. Mullinder, the Secretary, for his exertions on behalf of the society. It should be borne in mind that the business of the society had increased considerably during the last year, and that that increase had required greater exertions on the behalf of their secretary.—(Cheers). He would, therefore, move—"That the best thanks of the meeting be given to Dr. Mullinder, the Secretary, for his zealous and efficient services." Mr. FAIRFIELD seconded the resolution, which was carried unanimously.

Mr. MULLINS returned thanks. It was not many days since a member of the society had called him a goose.—(Great laughter). Now, although that observation was made in jest, he was determined to be a goose.—(Increased laughter)—for he should never forget that the cackling of a goose had saved Rome.—(Laughter)—and he was determined

not to cease cackling until he had convinced every clerk, of the value of this institution.—(Great cheering). He felt most acutely the marked honour that had been done him, and he trusted that the society would never find him undeserving of it.

The CHAIRMAN was desirous of mentioning one circumstance which was calculated to show the increased estimation in which the society was held by the public. In 1844 they had granted 110 policies; in 1845, 211; while in the present year they had granted 21, being more than one a day.—(Great cheering). He felt convinced that the end of 1846 would show an increase of prosperity in the institution unexampled in the history of societies of a similar description.—(Cheers).

A vote of thanks to the chairman was then moved by Mr. NORREY, seconded by Mr. J. NORMAN, and carried unanimously. The CHAIRMAN, in returning thanks, assured the meeting that as long as he held the office of one of their managers, he should do his duty fearlessly, without reference to any personal consideration, trouble, or exertion.—(Cheers). The meeting then separated.

## THE NATURAL HISTORY OF COAL.—No. I.

Mr. WM. OXON, curator of the Birmingham Philosophical Institution, has recently delivered a course of lectures to the members of the Polytechnic Society of that town, on the Natural History of Coal, embracing an inquiry into the cause of colliery explosions, and the means to be adopted for their prevention, and also an account of the manufacture of iron and gas.

The lecturer commenced the first of the series, by remarking that the subject upon which he proposed to address them was one which alike demanded the attention of every lover of science, and of every practical man, and one of the most important which could claim their attention among the numerous important phenomena embraced in the science of geology.

That science, setting out from the time when the fiat of the Creator was given, and when from a state of chaos the earth was first formed, went

forward to the time when it became fit for the abode of man, taking into account all the changes which during that period had taken place upon the surface and in the interior of what is called the crust of the earth, and all the races of organised beings which had inhabited it. In regard to the origin of the earth, the nebulous theory seemed the best supported and most generally received. It was supposed that the sun was at one time surrounded by an atmosphere in a state of great heat, which extended far beyond the boundary of the present planetary system; that this atmosphere, from some cause, gradually cooled and contracted; that portions were thrown off by centrifugal motion, which still retained that motion, while they became denser, and contracted again into smaller bodies. The original form is supposed to be still retained in the ring of Saturn. This theory had been first broached by La Place, and confirmed by the two Herschells, who had discovered by the telescope various masses of nebula existing in free space. It was proper, however, to mention that some of these masses had been reduced to fixed stars by the greater power of Lord Ross's new telescope. It was supposed that the granite, which forms the basis of the crust or small portion of the earth with which man is acquainted, was deposited during the heated condition of the earth, while the upper parts, which contain the remains of organic beings, were subsequent in their formation. Thus, the earth was not created at first as it now exists, but was the result of successive creations during consecutive periods. The primeval rocks were worn down by the action of water, and from the fragments which were deposited at the bottom of the ocean, the stratified rocks were formed. The order in which the rocks are found bears out this hypothesis. The lowest rocks were called Plutonic, being (it was supposed) formed by the action of fire, and do not contain any organic remains. It was not to be supposed that these rocks were necessarily the oldest, but rather that they were formed of the primitive materials of the earth. They were found in many cases to possess the volcanic character, being forced in the form of veins, resembling lava, through other rocks; and the analogy tended to strengthen the theory of their igneous formation. The next series of rocks was that containing the mica schist, &c., in which no organic remains had been found. It did not, however, follow from that, that the series was really much older than the rocks above. It had been evidently formed from the *detritus* of the older rocks, deposited at the bottom of the sea, and subsequently exposed to the action of heat. This cause would of itself be sufficient to account for the absence of organic remains, without that absence being considered proof that there were no animals existing at the time the rocks were deposited. These rocks were styled *metamorphic*, their form having been changed by the action of heat. Ascending higher, they came next to the Cambrian series, estimated at 10,000 feet in thickness, the first in which there were remains of animals, chiefly molluscs; and the Cambrian, 20,000 feet, containing also molluscs and fish: these were stratified rocks. Next came the Silurian system, so named by Mr. Murchison, from its occurring in that part of Wales formerly inhabited by the Silures: it contained slates and a dark-coloured limestone, and had been doubtless formed by deposition of *detritus* from the older rocks, being argillaceous, arenaceous, or calcareous in its nature, and less crystalline than the lower series. At the period of its formation, the ocean was evidently in a better condition for the support of animal life than formerly; and hence it contained a great number of remains of animals, each bearing the impress of a Creator's hand, and fitted for the circumstances of the time. The Ludlow formation, one of the Silurian rocks, rises up in the middle of the Dudley coal field, and the coal beds rest against it in almost all varieties of inclination: the dark limestone formed the Dudley Castle hill. The old red sandstone, 10,000 feet in thickness, formed the next in ascent, and contained many fossils intermediate in character between those of the Silurian system and of the carboniferous series. As they ascended through the various systems, they found the older forms of fish disappearing, and fresh ones succeeding, which were more adapted to the altered state of existence, and of a higher class of organisation. The carboniferous series usually rested upon the old red sandstone, but at Dudley this was wanting, and it in consequence rested immediately upon the Silurian rocks. The lecturer then called attention to a number of beautifully executed diagrams, showing the position of the various strata. He observed that he had adopted Professor Anstey's division of the rocks which contained organic remains into palaeozoic, secondary, and tertiary, each in turn being divided into older, middle, and newer. Reserving the coal for the remaining lectures, he proceeded to point out the magnesian limestone, the new red sandstone, the lias group, in which the ichthyosaurs and other gigantic reptiles lived, the lower and upper oolite, and the wealden beds, the first freshwater formation, and supposed to have been deposited in estuaries of rivers or large freshwater lakes, like those of North America. Above these lay the tertiary series, of which the London clay might be taken as a specimen. It must be observed that these formations were not found always exactly one upon the other, as in the model which he held in his hand. They might, as in this town, find the old red sandstone uppermost, the more recent strata having either never been deposited here, or swept away by subsequent causes. The order, however, which he had described, was always maintained, although various members might be absent. This fact was important, as upon it the whole science of geology rested. In ascending through the various series of rocks, they found that, although the animals of the earlier periods were of simpler construction than those found in later rocks, each was perfectly suited to the circumstances in which it was placed. This was a proof of the wisdom and goodness of the Creator; for what would man, for instance, have been, if created in the paleozoic period, before the formation of vegetables and of the various inferior animals which minister to his wants? The theory of the progressive development of animal life the lecturer strongly condemned, as degrading to man, insulting to his reason, and the more noxious as wearing the appearance of religion. Geology contained no facts which supported this notion. In the carboniferous series, one of the earliest in which vegetables are found, it had been discovered that the simplest forms of vegetation, the mosses and fungi, were absent, but that there were many of the most highly formed of the ferns and other kinds. Nothing was found in a rude state; all were perfectly fitted for the circumstances. Those who had examined for themselves found no ground for the opinion, which had been supported only by men who showed a striking disposition to overlook every fact which bore against it. It was not less opposed to the dictates of religion, since the Scriptures taught, that man was not formed out of some lower animal, but created at once in the image of God; and that the inferior animals were separately created. This would of itself be sufficient to condemn the opinion, even had the science of geology been in favour of it. The subject which he had selected for those lectures was one on which the man who studied science for its own sake, and he who estimated all things by the test of utility, were equally interested. The supremacy of our nation had mainly arisen from its stores of minerals. It had been aptly remarked that, had the granite of the Grampians extended into Sussex, or the chalk of Sussex reached to the Grampians, the whole face of British history would have been different. Nineteen of our most flourishing towns, it had been observed, lie upon a single stratum, the old red sandstone, being thus in the neighbourhood of iron, and of coal, gypsum, and other useful minerals. Without a knowledge of geology, many important sciences could not be correctly prospected, and to mining operations it was especially necessary. Geology redeemed mining from blind chance, showing that the metals were not distributed indiscriminately, but according to laws, tin being usually found in granite, lead in limestone, &c. Many attempts had been made

to find coal in other than the true position, the carboniferous series; but they had always issued in fruitless expenditure. At Kingsthorpe, one mile from Northampton, on the middle oolite, which lies far above the coal, a bed of clay, somewhat resembling the *clunch*, which lies just over the coal, having been found, pits were dug and machinery erected, in spite of the adverse opinion of Mr. Richardson, a scientific man; and the sum of 20,000/- had been expended in vain, when the working was stopped want of money. Many other instances could be quoted of a like character. A brown coal was occasionally found in the oolite, and a kind called lignite in the wealden beds, but they were unfit for use, having scarcely any of the properties of true coal. No prudent practical man would ever look for coal except in the carboniferous series. The lecturer concluded, amid loud applause, by a few general remarks upon the grandeur of the phenomena exhibited in the science of geology, and the enlarging influence of a study of that science upon the mind.

## SINKING OF COAL PITS BY MEANS OF COMPRESSED AIR.

We have alluded to this subject in a former Number, on the benefit that the adoption of the compressed air system is likely to confer in mining operations. We are glad now to be able to give more detailed particulars on this attempt, which has so successfully succeeded on the part of the coal mining company of Douchy, for passing the levels of the water by the means of atmospheric pressure. This experiment took place, some time ago, on the banks of the Loire, but on a far smaller scale and under more favourable circumstances; whilst this presented nearly insurmountable difficulties. However, through the indefatigable industry and perseverance of Mr. Charles Mathieu, director of these mines, the difficulty has been overcome, and the coal industry is now in possession of a powerful means, the absence of which often placed them under the necessity of abandoning the sinking of pits in earth, that was cut through by water levels. The following is the new process, employed by the director of these mines. Already several French and Belgian societies, at various times, had attempted to sink pits in certain portions of their grants, or concessions, where the dead earth is without consistence, and intermingled with inexhaustible springs, so that they were obliged to stop all working, after having gone to enormous expenses, which became perfectly useless. The coal interest began to despair of ever being able to solve this problem, when the director of the mines of Douchy proposed to pass through the two first levels of a pit recently opened, and to employ the method of atmospheric pressure, recently applied with success by M. Triger, director of a coal mine, situated on the banks of the Loire. The conditions were certainly not the same, as M. Triger had to work through only sands, which were easily passed; whilst, at Douchy, they had to penetrate an extremely stony soil. This difference in the nature of the earth consequently required a difference in the means of execution. On the banks of the Loire they made use of a tube of cast-iron, of four feet in diameter, for confining the water, driven in by degrees by a battering ram, according as the sand was extracted by the *terebra*, or wimble with a valve; whilst, at Douchy, they were obliged to employ, instead of iron plates, cross beams and planks of thick wood, and of a far more extensive diameter. With this exception, the manner of working was nearly the same—as the machine, or steam-engine, used for the extracting of the coal, is also made available to compress the air, which is introduced of its own accord, by a tube in communication with the blowing cylinder and the well, or pit, the orifice of which is hermetically closed. At the orifice of the pit is placed an air sieve, through which the tube passes, and which is provided at the bottom and the top with a door and a cock, so as to fill it, or empty it, as may be required. By these means, which are very simple, when compared with those formerly used, there is not only a great saving of time, but money also, as it would have been necessary, and that for more than doubtful results, to have had several steam-engines, the mounting and dismantling of which always incurs great expenses. It was at first feared that this means of working by compressed air would have been prejudicial to the health of the workmen who had undertaken it. These fears, however, have been quite dispelled; aged men, certainly, did experience a trifling pain in coming out, but only momentary, but the young ones were entirely exempt. The application of the air sieve certainly did produce a momentary deafness, but it went off by a cross-current, and it is easily to be avoided in voluntary gaping, or swallowing their own saliva. Under a pressure of 2½ atmospheres, it is nearly impossible to whistle; and under the pressure of 3 atmospheres, the voice changes, and they can only talk in a nasal way. The pulse is the same under this pressure as under the ordinary atmospheric pressure. So far has this ingenious system succeeded completely in the coal-pits of Douchy, which are now open, and in full work below the level of the waters. We shall again refer to the subject.

**HARWICH DOCKS COMPANY.**—Harwich, during the whole of the last war, was justly considered the most important port on the east coast of England; it was to this port that all vessels, not exceeding frigates in size, put in for partial refit. Sixty war ships were here built, 15 of which were two-deckers; while, in the whale fishery belonging to this port, vessels were employed to the amount of 3000 tons, employing 500 able men. Harwich was then in her zenith; but, since the peace, her fisheries have declined, her shipbuilding ceased, her naval yard and docks (still in existence) left to ruin and decay, and, from a flourishing seaport, she has become little more than a fishing town. Her capabilities are, however, still the same; and with the altered position in which the railroad system has placed society all over Europe, and by which the central, as well as the extreme northern and western, counties of England are brought into such easy approach to the eastern coast, and, consequently, with the western shores of France, Belgium, Holland, and the whole of northern and central Europe, it is probable she will again rise to more than her former greatness, and become the great point of communication with London, avoiding the circuitous and dangerous naval route of the Thames; and, in connection with the Birmingham and Central England Railway, open a direct communication with all parts of the kingdom. We understand, the committee of management of the company, under notice, have made arrangements with the present proprietors of the docks and the above railway company, and are now in a position to go to Parliament, for an Act to enable them to construct suitable

## GREENHOW'S GEOMETRIC RAILWAY.

Having in our last advertized to this novel mode of constructing railways by the adoption of circular rails, and with the carriage independent of the frame or body to which it is connected, by upright arms working on a pivot, and hinged or tied by lateral chains or braces, we have much pleasure in resuming the consideration of the subject, and placing before our readers a more detailed description, so that the advantage presented by the patentees may be better understood and appreciated. The following remarks are the result of a careful inspection of the model, and the very lucid explanation of the several parts of the mechanical (or, we should rather say, geometrical) arrangements, which form the principle on which the improvements are grounded; while it will be observed, that mathematical accuracy pervades the machinery in all its details. As a theorem, it is, we have no hesitation in saying, perfect; but, as already observed, its success, on a practical and working scale, remains to be proved.

In order to gain the ends proposed, they have been obliged to alter the arrangements of the whole present construction. Commencing at the rail, and by peculiar arrangements in the spokes of the wheels, and suspension of the carriages, they have so balanced the centrifugal and centripetal forces, as to render it impossible to throw the train off the line, and to make it quite safe to go at any speed which the tractive power can accomplish.

All our readers are aware of the tendency of the centrifugal force, to throw the train off when in rapid motion. This is completely prevented by very simple means—to explain which, the following remarks will be pertinent. On a body being put in motion, it immediately becomes subject to the influences of the centrifugal and centripetal forces. Now, the tendency of the centrifugal force is to make bodies move in a straight line, which they would do, going off from the earth's surface at a tangent, were they not restrained by the centripetal force, which retains them on the surface of the globe. Thus, a body being projected into the air, at first describes nearly a straight line, but, as the friction through the atmosphere gradually overcomes the projectile, or centrifugal force, it, in obedience to the centripetal, deviates from the straight line, which becomes more curved in a ratio equal to the diminution of the speed at which the projected body moves, until the preponderance of the centripetal force brings it to the surface. Should a body in rapid motion strike another fixed body, it will divert the centrifugal force, turning it off at an angle, having relation to the speed of the body in motion, and the angle at which it came in contact with the other.

In railways, on the train being put in motion, the rails become regulators of the course to be taken by the centrifugal force, turning it from the direct line, by the flanges of the wheels coming in contact with the rail, on the side opposite to that to which the curve inclines. This may do very well while the speed remains moderate, and the curve giving the deviation to the centrifugal force becomes but slight; but as the speed increased, the power of the centrifugal force increases also, and in exact proportion to that increase, it is more difficult to divert from the straight line. Thus, the greater the speed used in railway travelling, the more is the danger to be apprehended from the tendencies of the centrifugal force. An inequality in the rail, or its sitting loosely in the chair—a slight sinking of a sleeper, so as to cause one side to be elevated above the other, or the least deviation from a straight line—will cause a diversion of this force, and should the speed be rapid, making that power strong, will certainly cause the train to be thrown off the line. In very rapid travelling, even on a directly straight line, the unequal resistance offered by the atmosphere to the passage of the carriages, caused by the wind blowing across the line of motion, or from suddenly entering or leaving a cutting—or by going upon, or passing off from, an elevated embankment—will cause a diversion of the centrifugal force, giving a vibratory motion to the carriages—their wheels first striking one rail, then rebounding to the other—the force of the rebound increasing with every blow, until the oscillation becomes sufficient to throw them over. This will account for many of the accidents which have recently occurred on the railways.

Now, the best and the safest way to guard against the ill effects of the centrifugal force, is to apply another power, which, receiving its impulse from the same cause, and yet acting in a different direction, will completely and certainly keep in check its evil tendencies. And this power may be found, by restraining the vibration of the pendulum,—because any obstacle, giving a diversion to the centrifugal force, would have a tendency by its impulse to raise the side of carriage, opposite to that which the diversion would be—(this is the cause of the carriage being thrown over when the force becomes sufficiently strong). But, at the same time, it would cause the pendulum to vibrate in the like direction to that in which the centrifugal force is diverted—that is, towards the opposite side from the one elevated—when the restraint on the pendulum would throw the force of its whole weight to either side which may be at all elevated. The rail is also to be round, and the circumference of the wheels to have an inclination from the axis at an angle of  $22\frac{1}{2}$  degrees, allowing either side to be elevated to that extent before the spokes of the supporting wheel are thrown beyond the perpendicular, and thus materially assisting the pendulum in its operation. The following diagrams will give a more clear description of the plans adopted:

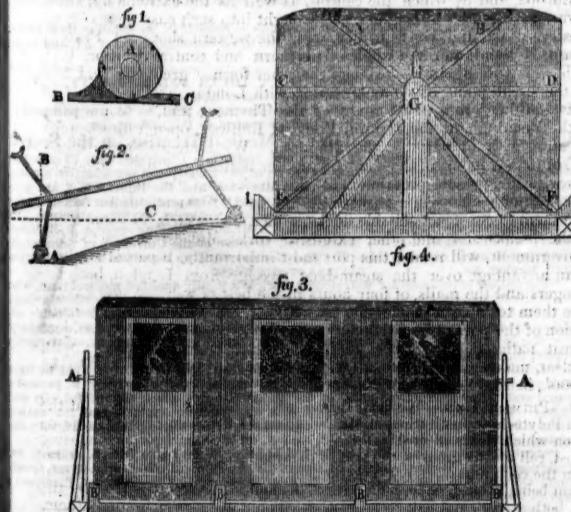


Fig. 1. A transverse section of the rail, which is a hollow tube, or cylinder, of cast iron, three inches in diameter, with a one-inch bore; leaving the metal one inch in thickness, to be secured to the sleepers by chairs, as with the rail six inches broad, and three feet apart (see B, C).

Fig. 2. Section of the wheels resting on the rails, having the tire accurately fitted to the rail, embracing segment of its circumference equal to 20 degrees, and the circumference of the wheels inclining towards the axis at an angle of  $22\frac{1}{2}$  degrees; thus giving great stability to the carriages, and almost entirely preventing vibration by doing away with the rebound from rail to rail, which now takes place in rapid travelling. This section shows the effect of the depression of the rail, A, in consequence of the sleepers sinking, the tires of the wheels having revolved round the rails to a distance equal to the angle of elevation, and still passing safely along; the axis of the lower wheel being within the perpendicular, B. C, suspended original level of railway.

Fig. 3. Side view of the carriage, which is suspended by the pivots, A, A, inserted into iron standards, placed on the opposite ends of a wooden frame, having iron holdfasts, B B B B, at equal distances along the side, to which the lower edge of the carriage is secured by chains to prevent it vibrating on the pivots, in order that the weight may be thrown between the pivots and the side which may be elevated, bringing the centre of gravity between those points, and thus counteracting the effect of the centrifugal force.

Fig. 4. End view of the carriage, strengthened by cross pieces, A B C D E F, meeting at the point where the pivot is secured, which rests in the

standard, G. The figures 1 and 2 show the holdfasts and chains arranged to suspend the carriage from either side which may be elevated.

The model is on a scale of one inch to the foot, and the carriage is propelled on a line of circular rails, with an elevation on the one side of (or at an angle of)  $22\frac{1}{2}$  degrees, as shown at Fig. 2, which it is hardly necessary to observe, on an ordinary line or road, would inevitably throw the carriage off—and, in all probability, be attended with fearful effects,—whereas, by the construction of the carriage being suspended between the cross arms and the lateral ties, and the peculiar construction of the wheels, the carriage or weight preserves its equilibrium, and the weight is equally dispersed, while the wheels traverse the circular rail at the angle mentioned. On a curve semicircle of a perfect, 60 inches in diameter, as shown by the model, the carriage is made freely to run without any interruption, or impediment, presenting itself—the two front wheels playing on a guide rod, so as to accommodate themselves to the curve which the line presents, and thus being enabled to preserve the carriage in its position, without any rocking, or being subjected to accidents, arising from its running off the line—the wheels being so constructed as to fit the circular rail, as before particularly described. We presume the models to be made in due proportion, both as to the relative dimensions and weights, and that the rate of propulsion has been duly considered.

The working of the model fully bears out the theory here propounded, on raising the railway by wedges,  $22\frac{1}{2}$  deg. on one side, the effect of the non-vibrating pendulum is apparent; supposing the right hand side of figure 4, to be elevated at 2, the whole weight of the carriage is thrown between the pivot and the chains—those at 1 becoming immediately slackened, and a piece of board  $\frac{1}{4}$  in. in thickness laid on one rail of the model, which, in proportion to the size of a working carriage, would throw any ordinary railway carriage off the line, the carriage in this case passes safely over. Having brought our observations to a close, we have much pleasure in stating that the model may be seen at the residence of the patentees, 12, Cecil-street, while inquiries are courted, and, judging from the reception we received, every information most readily afforded. We are glad to be thus able to present to our readers a succinct account of the patent, so far as a typical description can render it, and shall willingly insert any remark bearing on the subject, approving of the principle, or raising questions as to its applicability, so that its merits may be fairly canvassed.

## THE CONDENSED STEAM-VACUUM PRINCIPLE.

We have, on numerous occasions, noticed Mr. Nasmyth's various direct applications of steam to machinery, and, among others, that for the exhaustion of the reservoirs for atmospheric railways, by low pressure steam. On this last invention his claim has been disputed by Mr. Carson, who, from having invented an apparatus for withdrawing air from mines, wells, or apartments, fancies he has an undoubted claim to this proposal of Mr. Nasmyth's, for causing a vacuum for atmospheric pressure; Mr. Mallet, of Dublin, also claims for a similar purpose. Now, in his specification, Mr. Carson observes—"My invention relates to certain apparatus for removing air from a chimney, or other shaft, first, by means of draughts, induced by means of the outer atmosphere; and, second, by means of steam;" and his claims, we allow Mr. Dircks, who supports Mr. Carson's claim, to give in his own words, and we think it cannot, for a moment, be considered that Mr. Carson ever had any idea of making a vacuum for propelling machinery, much less for atmospheric railways; it is also a remarkable fact, that Mr. Carson uses high pressure steam, Mr. Nasmyth prefers low. Mr. Dircks, in endeavouring to prove the patent of Mr. S. Carson to be the original, in opposition to the claims of Mr. Mallet and Mr. Nasmyth, in a communication to the *Mechanics' Magazine*, says,—

"When Mr. J. Nasmyth's patent for a steam-vacuum (sealed Oct. 22, 1844,) was announced, his distinguished character as a most inventive and intelligent engineer, naturally contributed to raise expectation, that a principle at once so simple and economical as that proposed by him would, if anything could effect the object, prove the salvation of the atmospheric principle of railway propulsion. Instead of costly engines, and air-pumping machinery, the entire labour of obtaining the vacuum in the propulsion tube was to be performed by a communication with two or more vertical cylindrical boilers, or vessels of like construction; low pressure steam entering at one end was to blow out at the other the contained air, without employing any piston—for Mr. Nasmyth found the steam and air did not intermingle, at least not to any detrimental degree—and by means of a suitable condenser, using a pipe, or rose, a jet of cold water could be thrown in as formerly introduced for the old atmospheric steam-engines. Then by opening suitable valves, the air rushing into these vacuous cylinders would exhaust the propulsion tube on the line of railway. Every one who heard of this mode of applying the condensed steam-vacuum principle, unhesitatingly avowed its excellent adaptation for the intended purpose. It would be singular if an invention so apparently obvious to any practical mechanic should escape being anticipated, and we can scarcely be surprised, therefore, in this instance to find it the case; a curious instance being afforded by the published papers of Robert Mallet, Esq., A.B., M.I.C.E., M.R.I.A., &c., which appeared in Mr. Weale's *Quarterly Papers on Engineering* containing three communications by this gentleman, "Upon Improved Methods of Constructing and Working Atmospheric Railways." They bear date November 15, 1842, and will be found in the *Mech. Mag.* from 29th Sept. to 4th Oct. last. It seems Mr. Mallet was consulted by parties interested, in reference to the subject of improving the means of obtaining the vacuum for use upon atmospheric railways, the latter part of the year 1842; and having first communicated his ideas, confidentially, to one party, he afterwards drew up a memoir, sealed it, and deposited it in the archives of the Royal Irish Academy, on the 13th of November, 1843, (one year after its composition.) Mr. Nasmyth's patent being specified the latter end of April, 1845, Mr. Mallet no sooner became acquainted with its purport, than at an early meeting of the Academy, on the 20th of May, 1845, he had his sealed packet opened in their presence, when it was found to contain three MSS., which it is presumed are those already alluded to as being published. The inventions certainly appear identical, and so far, a remarkable coincidence is established. Mr. Nasmyth, in his patent represents two vacuum cylinders placed vertically; Mr. Mallet shows four placed horizontally; but in principle both are dependent on blowing out the air by the direct action of low pressure steam, and condensation afterwards, as Mr. Mallet says, by "water supplied to the condenser by a perforated pipe and stop valve." The only extraordinary part of the matter is, that Mr. Mallet should assert his priority in reference to Mr. Nasmyth, when the latter had actually specified a patent claim, and which became public property nearly a month before anything was heard of Mr. Mallet's secret memoirs; yet he speaks of them as being "published prior to the date of his (Mr. N.'s) patent!"

However, I am now prepared to show, that neither of these esteemed and talented engineers has any just claim to priority of application of this, as Mr. Mallet designates it, "generation and condensation of steam in closed vessels of suitable capacity." On February 5, 1846, a patent was granted to Mr. Samuel Carson, for improvements in apparatus for withdrawing air or vapour. Mr. Carson's object was to produce currents of air, either by a blast of air or steam, or by a vacuum produced by the condensation of steam. He describes various modes, some applicable to chimney-pots, others to the shafts of mines, and for other purposes. It will here suffice to state, that in his specification the annexed diagram is given as fig. 8, and the patentee describes it as showing "another apparatus, constructed according to my invention, and is to be worked by a vacuum produced by condensation of steam; f, is a shaft, or pipe, in connection with a mine or house, or other place, from which it is desired to withdraw air. On the upper part is applied a valve, opening upwards; g, is a vessel into which the pipe f enters; consequently, any air which passes from the pipe way f, will flow through f' into the vessel g, and when steam is admitted into the vessel g, the air therein will be driven out at the opening and valves, h. The vessel is supplied with two pipes, one by which steam is allowed to flow into the vessel, g. I prefer to use high-pressure steam, and to cut it off at such a position that, in expanding, it will fill the vessel, g, with atmospheric steam; but I do not confine myself thereto. The other two pipes lead to a condenser, i, and there are stop-cocks on the steam-pipe, and the pipe which leads to the condenser, which cocks are to be alternately opened and shut. Thus, supposing steam had been allowed to flow into the vessel, g, and was closed, the cock on the pipe leading to the condenser, i, would be opened, by which the steam would rush away and be condensed, and there would be a vacuum produced in the vessel, g; but the valve on the passage opens, and air flows into and fills the vessel, g; the cock on the pipe to the condenser, i, would then be closed, and the cock on the steam-pipe would be opened, by which steam would

again flow into the vessel, g, and drive out the air therefrom by the air valve, and by this arrangement, a very cheap apparatus for using steam as a means of withdrawing air will be obtained." And, in conclusion, he says, "I claim the mode of constructing apparatus to be worked by steam and condensation, as described in respect to fig. 8. This specification was enrolled August 5, 1846."

A more complete proof than this cannot be offered of the nullity of Messrs. Nasmyth and May's patent, or of the unsubstantiality of Mr. Mallet's claims, although his opinions are supported by Mr. Bergin, Dr. Robinson, Ast. Royal, Armagh, Dr. A. John, T.C.D., and equally unquestionable authorities, their evidence in favour of this economic mode of effecting a rapid and complete vacuum, only affording most satisfactory evidence of Mr. Carson's just views, and the talent and ingenuity he has displayed. Had Mr. Carson confined his patent claim to a particular object, which he has not done, then indeed Mr. Nasmyth would still be entitled to the application for railway purposes; but, fortunately for the original patentee, neither in the title of his patent, nor yet in his specification, does he restrict himself, but expressly claims this admirable mode of superseding the use of the air-pump, for purposes enumerated, or for "other places from which it is desired to withdraw air." On the other hand, Messrs. Nasmyth and May claim for the express object of applying this system to atmospheric railways, a claim to which Mr. Carson has a clearly prior title."

Mr. Mallet, with respect to Mr. Carson's claim, takes the same view of the subject as ourselves, and very justly observes—"That Carson's patent is limited simply to the particular apparatus which he has figured and described, and as applied to the ends or uses, to which he limits himself in the preamble of his patent; and this being so, his inventions have nothing whatever to do with those to which Nasmyth and myself lay claim;" and again, "For to assume that it is not so, then the patent itself is null and void, because this mode of obtaining vacuum has long, long ago, been proposed, printed, and applied to a great variety of uses; for instance, Dr. Ure, in his *Chemical Dictionary* (article Caloric), recommends this mode of producing vacuum for the formation of ice, according to Leslie's plan, and other persons have long since proposed its use." Mr. R. S. Newall, of Gateshead, also confirms the views here taken, and introduces an article from the *Mining Journal* (Aug. 31, 1844), descriptive of an atmospheric railway, the invention of C. Roberts, Esq., to show that Mr. Mallet's patent, for producing the vacuum by steam for atmospheric railways, is by no means new, Mr. Roberts's plan having been published before he took out his patent. We have thus given a fair digest of the opinions of each party: we, certainly, do not think Mr. Carson has any claim on the invention, as applied to atmospheric railways: and with respect to the disputed claim between Messrs. Mallet and Nasmyth, there is so much to be said on both sides, that we feel disposed to leave the subject in their own hands.

## GEOLOGICAL SOCIETY.

JAN. 21.—The President (Mr. L. HORNER), in the chair.

Prof. Sedgwick read a continuation of his memoir commenced at the last meeting "On the Classification of the Fossiliferous Slates of Cumberland, Westmoreland, and Lancashire." The author stated, that the object of his present communication was to give the general conclusions arrived at in his two papers already read on this subject. He first briefly described the succession of the northern older Palaeozoic rocks, and his conviction that the views already given are correct with regard to the general classification of these rocks. He then, by means of several tables, constructed by Mr. Salter, compared the fossils of different members of the Silurian series of rocks as developed in Westmoreland and North Wales, and came to the conclusion that in these districts the Wenlock series (which he considers to be strictly an intermediate series between the Ludlow rocks and Caradoc sandstone) is very imperfectly represented for want of limestone bands; that the upper or Ludlow series, and the series of Lower Silurian, are both present, the former in great abundance, and the latter as before intimated, very imperfectly; but that the two are distinctly separated from one another by their organic contents, which also differ considerably in both cases from those of the recognised Silurian types as established by Mr. Murchison. In conclusion, the author threw out the suggestion that all the great Plymlyn system, from the grit, &c., at the south end of the Berrymoor chain, should be ranked among the upper Silurians of Mr. Murchison, and that these may possibly extend much further to the south than has been hitherto supposed. He reconciles this view with the declared occurrence of Llandilo flag fossils in the latter rocks, by supposing that the fossiliferous beds in the Llandilo flags occur in the upper parts of the lower Silurian series, representing, in fact, very nearly the Wenlock limestone and shale, and he exhibited tabular lists of fossils supporting this view. The author then concluded—"Taking the whole view of the case, as far I know it, I would divide the older Palaeozoic rocks of our island into three great groups, each in local descriptions, to be further subdivided. These groups are—first group, Cambrian; second, or middle group, Lower Silurian, including the Llandilo, Caradoc, and, perhaps, Wenlock series; third, or upper group, exclusively Upper Silurian. This arrangement does no violence to the Silurian system of Mr. Murchison; and I think that it enables us to classify the old rocks in such a way as to satisfy the condition of fossil, physical, and mineralogical development.

A paper was next read, "On some Fossils found in the Coal Formation of Nova Scotia," by John W. Dawson, Esq. These fossils were:—First, fossil markings, supposed to be the imprints of the feet of some animal; second, coprolitic bodies; third, distinct coal plants, confirming the author's previously expressed opinion as to the age of the series; and, fourth, of worm-tracks in the sandstone, which are very abundant. The author has also met with coniferous wood in these beds, in which the structure has been well preserved; and at one spot he found the fossil stump of a tree connected with roots like the so-called *Stigmaria*. In this case, a portion of one of the main roots was seen attached to the trunk. Lastly, the author had observed numerous fragments of *Steinbergia* in the stony casts, having a thin bark or coating of lignite, which he thinks may throw light on the true nature of these vegetable remains.

Some notes by C. J. F. Bunbury, Esq., F.G.S., on the coal plants thus recorded, were then read. Mr. Bunbury thinks that the evidence offered with regard to *Stigmaria* is interesting and important; but since the supposed roots differ slightly from *Stigmaria*, and the stem is not that of *Stigmaria*, there still remain some points unsettled, and some difficulties unexplained. With regard to *Sternbergia*, Mr. Bunbury supports Mr. Dawson's view that it may have been a gigantic cylindrical rush-like plant, resembling the modern *Juncus*. He suggests also, that the name *Artisia* should be retained for this fossil genus. The author added a few remarks on a somewhat remarkable specimen of *Sigillaria* which had been forwarded by Mr. Dawson, exhibiting two distinct and parallel sets of markings. This was explained as being most likely, owing to two different species having been crushed together.

A notice was read "On the Strata called Jackstones, at Mortby Tydyl," by J. Dickinson, Esq., F.G.S. These stones occur in beds about nine inches thick; underneath, and in contact with, the ironstone seams, and below the coal seams; they contain a far larger proportion of carbonate of lime than the beds associated with them, and are used in the iron furnaces as a flux, for burning to make cement, and also for the roads: they contain about 45 per cent. carb. lime, 27 per cent. proto-carb. iron, about 10 per cent. alumina and silica, and a little magnesia.

## SOCIETY OF ARTS AND MANUFACTURES.

JAN. 28.—W. F. COOKE, Esq., in the chair.

The first paper read was by M. Claudet, on some principles and practical facts in the art of photography, and contained a series of very interesting scientific researches, and communicated several important discoveries in this new and curious field of research. This paper was a sequel to a communication read by Mr. Nott on a previous evening, in which he had endeavoured to establish that the rays which make the photographic picture are different from those which produce light; and this he thought he had proved, by means of pictures formed with a polarised ray, reflected from parallel plates. M. Claudet contends that the rays of light are the agent he had made many experiments on, forming pictures by reflection, but had not been able to discover any essential difference between them, and such as are formed by the direct ray. His next series of experiments regarded the photographic qualities of light of different colours, blue proved to be the most powerful photographic agent, and yellow the weakest.

One of the most beautiful experiments by which this was proved, consisted in throwing the prismatic spectrum on paper, and on the silver plate. The colours being marked on the paper, and the effect remaining on the photographic plate, he thus showed that the photographic prism presents effects very different from the apparent intensity of the prismatic spectra.—A remarkable specimen was shown of a silver plate, on which the rays of light had brought out a powerful picture, without the action of mercury.—Another series of experiments made was on the photographic action of the rays of the moon, which had formed a powerful picture by five minutes' exposure. He hoped to be able to obtain a very accurate Daguerreotype of the moon's surface, drawn by herself on a silver plate. Considerable discussion followed, and the announcements in the paper were received with much approbation.

Mr. Bettie's paper, "On a New Code of Signals, and the Construction of Signal Lamps," was next read, and illustrated by models and experiments. By the simple use of a pair of slides, attached to an ordinary lantern, a combination of signals was effected, by which the loss of life and property by the collision of steam-boats and sailing-vessels might be simply and cheaply avoided.

MANCHESTER GEOLOGICAL SOCIETY.—At the last meeting of this society, John Moore, F.L.S. &c. in the chair, an interesting paper was read by George M. Omerod, Esq., A.M., F.G.S. &c. &c. "On the red sandstone of Daresbury and Runcorn." After the paper, a discussion took place, in which the chairman, Dr. Black, Dr. Ainsworth, and Captain Brown, took a part.

\* See *Repository of Patent Inventions*, No. VI., vol. V., 1845.

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RECENT TESTIMONIAL. Dover, January 25, 1845.

SIR—I have great pleasure in informing you, that the 2s. 6d. box of KEATING'S COUGH LOZENGES, had at your house about three weeks since, has relieved Mrs. Miller of a bad cough, to which she has been subject many years, especially in the winter season. A considerable portion of the lozenges are on hand, nor has she, for the last fortnight, had any occasion to use them.

Mrs. S. Marten, Dover.

F. T. HILLER, Jun.

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